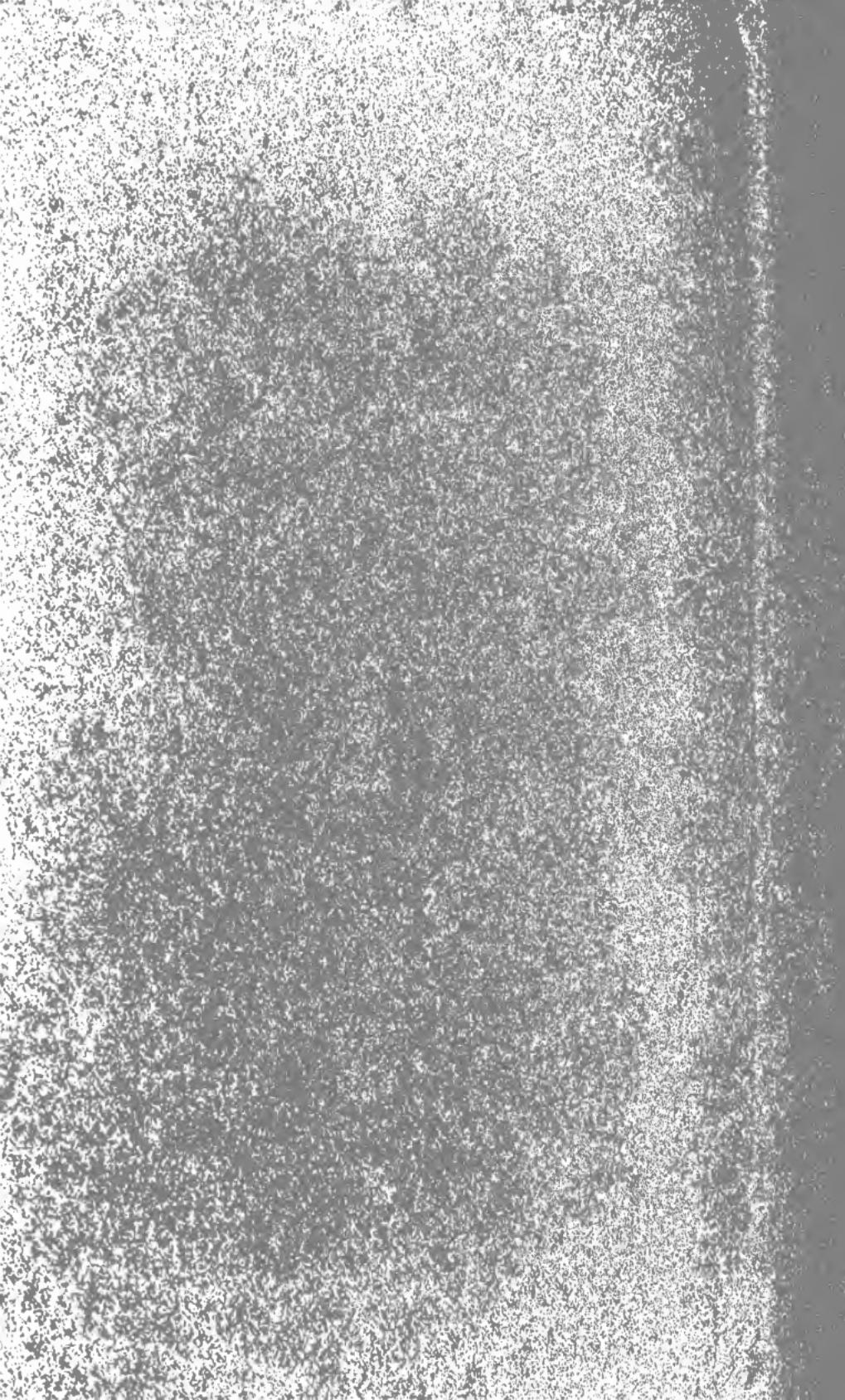
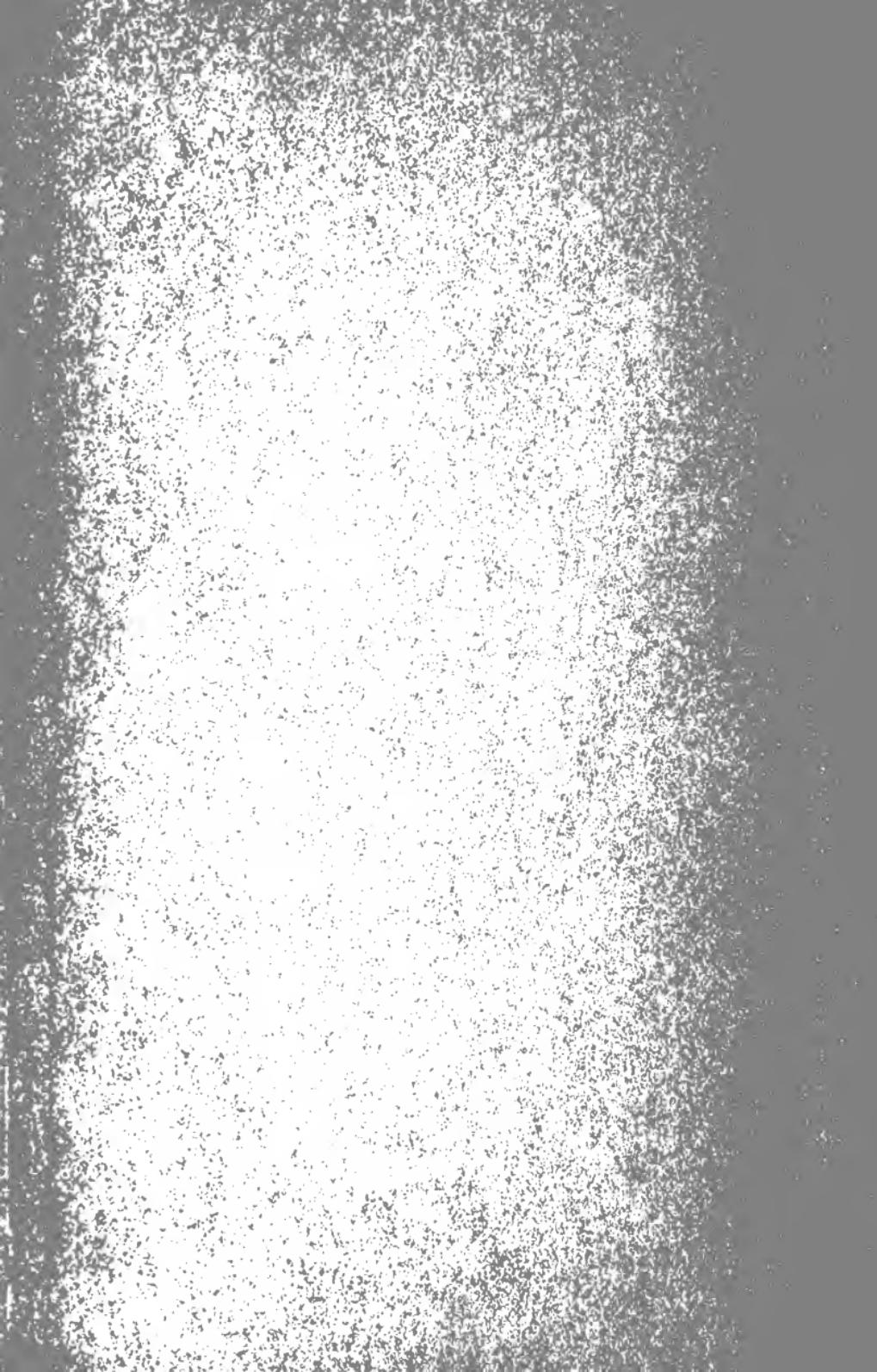


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HOW CHILDREN LEARN TO DRAW

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AND

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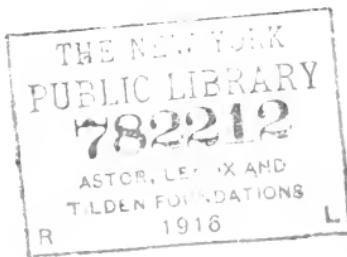
INSTRUCTOR IN ART IN THE ELEMENTARY SCHOOL OF THE
SCHOOL OF EDUCATION, THE UNIVERSITY OF CHICAGO

GINN AND COMPANY

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PREFACE

Some of the recent helpful contributions to the subject of teaching drawing have been in the form of theories as to what ought to be accomplished. Others have been in the form of descriptions of the devices and methods employed in various places. This book brings both of these points of view into close relationship, not only by presenting them together in the same volume but also by recording the particular classroom experiences which formed the basis for the theory given and which in turn have been modified by that theory.

It seemed to us that the concreteness of a detailed description of the experiments and theory of one school would compensate for the necessary limitations of such a treatment. We hope that the results are representative enough to justify us in having given to the description of the work of a single institution a name so broad in its significance as the title of this book.

Our sincere thanks are due to the instructors in the Elementary School whose coöperation made possible the close relation of drawing with the other subjects, and also to Mr. Harry Orrin Gillet, principal of the Elementary School, for his concurrent efforts and for his helpful suggestions regarding the manuscript.

THE AUTHORS

CHICAGO, ILLINOIS

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HOW CHILDREN LEARN TO DRAW

INTRODUCTION

The methods of teaching drawing in the Elementary School of the School of Education in The University of Chicago during the past few years have been in the nature of an experiment to discover how children learn most readily to use drawing as a common means of self-expression.

Two uses of drawing have been emphasized: first, its use as a means of intellectual expression which differs essentially from verbal language and therefore offers a unique method of analyzing and dealing with subjects and showing them in a new light; second, its use as a form of æsthetic expression, a means of developing artistic appreciation, and an avenue to the sources of æsthetic enjoyment.

Any means that appear ultimately to promote appreciation and ability in self-expression have been given fair trial, however questionable from the traditional artistic standpoint they may appear at first sight. For example, in building up a vocabulary of forms, direct observation has been supplemented by

some copying and occasionally even by tracing, and a few forms have been taught at first by dictation.

As high a class average has been expected in drawing as in any other subject. Methods as systematic as those in other subjects have been employed, and unpromising beginnings, even in the upper grades, have not been regarded as reasons for discouragement. Special talent in art has received the same consideration as does special talent in mathematics or in language. Daily records of each step followed in dealing with various topics have been kept, in order that from time to time the work of the children may be studied and modified in the light of all the details of procedure.

This book presents some of these records, selected to show representative series of lessons, accompanied by explanatory notes and illustrations from the work of the children. This description of classroom method is followed by a statement of the conclusions reached as a result of this experiment, in the form of a theory as to how children learn to draw. While it is the intention of this book to select and deal specifically with only one of the major lines of art instruction in elementary schools, namely, pictorial representation, it will be noted that design is so intimately involved that it is necessarily given almost equal emphasis.

Most of the methods and materials used are available for schools everywhere.

CHAPTER I

THE ILLUSTRATION OF THEMES

The illustration of themes occurring in school subjects other than drawing gives the children experience in practically all the phases of drawing which a school course needs to include. In the first place, each of these subjects constitutes a center which furnishes the narrative or subject interest—the definite "something to tell" which is necessary for all good drawing. Secondly, it provides the motive for gathering data which shall make these drawings adequate descriptions of the subject under consideration. These data insure drawings much richer in detail of descriptive material than would be possible if the children drew simply from their imagination. It necessitates studying reference material, such as objects or pictures, and learning how to represent the forms or pictorial effects necessary for full illustration of the theme. Thirdly, it gives practice in pictorial composition and provides opportunity for experimenting with the arrangement and spacing of the illustration in a way that contributes at the same time to the clearest presentation of the subject matter and also to the most pleasing design. This

involves, in addition to experimentation with various space arrangements and a discussion of the different effects produced, a study of the best examples of pictorial composition, under conditions which relate them immediately and intimately to the child's efforts to make a harmonious design out of his own illustration. For example, after the children have worked out such a theme as occupations in agriculture, acquaintance with the composition of Millet's pictures of workers in the fields offers them definite suggestions as to improving their own arrangements.

The teacher encounters the problem of using themes as they occur in the regular school program and still keeping the integrity of the course in drawing. The two greatest difficulties are these: First, the value of drawing does not lie wholly in its use as an accompaniment of other subjects. It has its own characteristic realm, which its use in relation to other subjects does not entirely cover. The child's progress in drawing is not always best ministered to by compelling it to conform to his progress in the other school subjects. Second, themes selected from the general educational program do not always furnish the interests most vital to good drawing. These two difficulties are worth serious consideration.

However, facts seem to indicate that the instructor who sees most clearly what grounds the drawing should cover, and who has also the most

comprehensive knowledge of the school work as a whole and of the part drawing should have in this work, is generally the one who sees in the themes supplied by the subject matter of the general curriculum the best possible opportunity for accomplishing the specific ends he desires in the drawing.

With regard to the vitality of the interests furnished by these school themes, it may be said that interest in any subject which continues through successive lessons is cumulative. The instructor in drawing who uses school themes for material is able to reënforce the particular interest which arises in the drawing by taking advantage of the interest already awakened in the subject chosen and thus to utilize the momentum of both.

This is not to say that the subject matter of other school work should furnish the entire material for drawing. Nevertheless, when on the one hand special instructors in drawing have a comprehensive knowledge of the grade work as a whole, and when on the other hand the school authorities no longer regard drawing as a special subject, the pedagogy of which is essentially different in nature from that of other subjects, it will be found that the teaching of drawing is vitalized, and that its scope is widened rather than narrowed by close alliance with the rest of the school program. The following pages describe in detail the working out of several school themes. These themes

are not in any way intended to show the actual subjects which should be taken in every school. They were selected because they were the themes which occurred in connection with the other studies, and are described because they offer typical examples and not because they are necessarily the best subject matter.

THE ILLUSTRATION OF HISTORY

GRADE I

Indians

The study of Indian life forms one of the history topics in the first grade. Jenks's "The Childhood of Ji-Shib" is used as a basis for this work. The story is told in a simple and dramatic way. The children work out many of the activities of Indian life by constructing Indian villages upon the sand table and by dramatizing parts of the story. This necessitates a close study of the wigwam, canoe, weapons, food, animals, etc. Each child makes an "Indian Book," in which he keeps all his written papers and illustrations. The following points are copied from the history outline:

Drawing :

- (a) Sketches of wigwams, canoes, utensils, etc.
- (b) Free-hand drawings to represent various phases of Indian life, as hunting, cooking, etc.
- (c) Working out designs for the cover of the "Indian Book."

This informs the instructor in drawing definitely as to what lines of illustration the grade teacher thinks will contribute most to the history. The work of drawing in relation to this particular history topic is here given in full detail, as it was actually presented to the class.

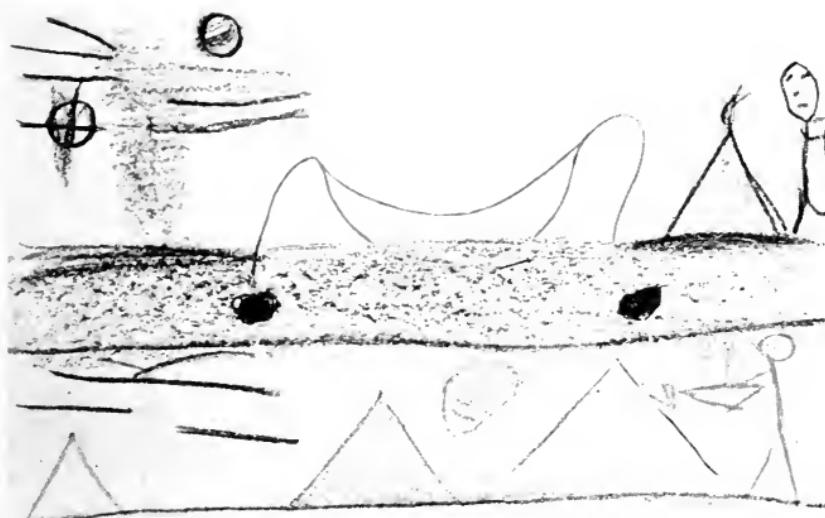


FIG. 1. A CHILD'S FIRST SKETCH OF INDIAN LIFE

1. After the children had been given Indian stories they were told to draw a picture which would show some phases of Indian life (Fig. 1). The class then had opportunity to see all the sketches together and to talk them over. They saw clearly the need for better drawing of certain important objects. For example, they saw the need of being able to make a better drawing of a canoe. They were then given

detailed practice with the shape of the canoe. First they drew from a small model. It was found that they were able to appreciate the shape much better if they traced it in the air with a finger, then drew it on the board, and lastly on paper. This was followed by free-hand cutting of the canoe shape. As a result of this practice, three fourths of the children were able to represent the shape fairly well. Those who did not get a good shape practiced again and again, tracing it in the air and on the board, the teacher drawing with them (Fig. 2). The same method was followed in studying the shape of the wigwam, namely, tracing it in the air and drawing it on the board and on paper, with suggestions from models and pictures, and then cutting it free-hand from paper.

2. The children made simple pictorial compositions, using elements which they had just learned; namely, the wigwam and the canoe. They now criticized their first pictures again, this time with regard to the position of sky lines and the placing of trees and water. They compared their own drawings with other pictures, in order to see how skilled artists had represented these things. They made particular notes regarding the representation of the sky line and the placing of trees with regard to the horizon. The instructor then made very simple illustrative sketches showing the children how to represent

GRADE I
STEPS TAKEN IN LEARNING
TO DRAW THE CANOE

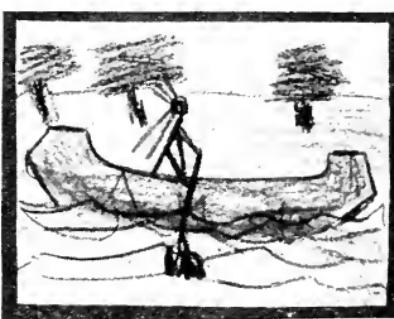
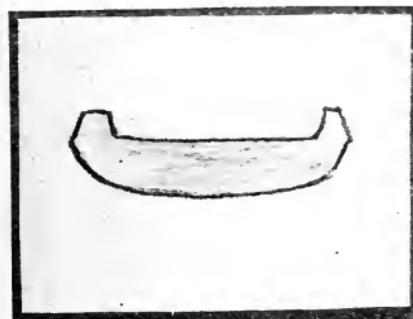
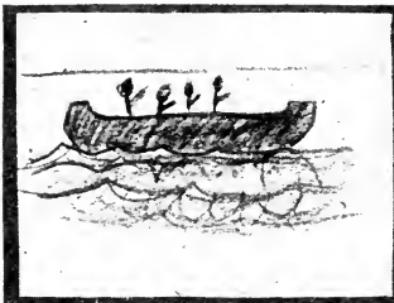
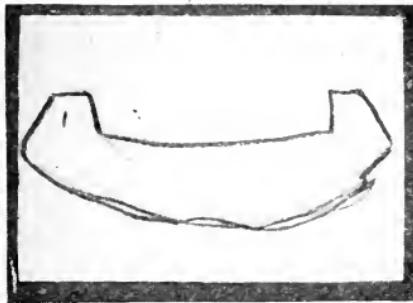
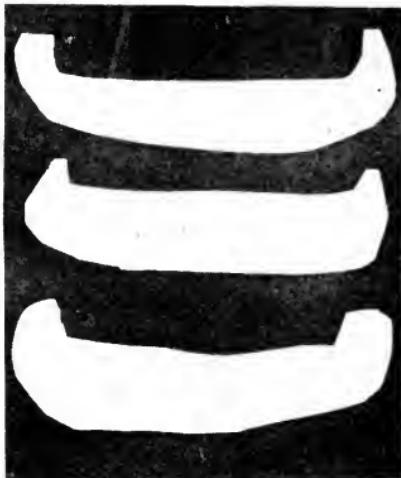
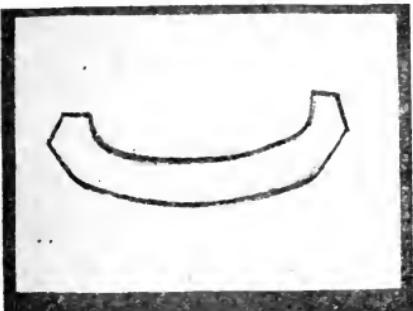


FIG. 2. SUCCESSIVE STEPS IN LEARNING TO DRAW A CANOE

the sky line and water. She did this by drawing quickly before the class, using the same sort of crayons and paper which the children had and letting these sketches serve not as copies but as illustrations of the process, thus giving the children the stimulus of seeing someone actually draw the lines which produced the effect. These drawings were put into the wastebasket as fast as they were made. With the suggestions and the fresh impulse thus gained, each child redrew his own picture, putting in wigwams, canoes, and Indians, as needed. For the Indians, skeleton outlines were used, and the feather headdress, a feature so characteristic of Indians in the mind of the child, was added. Fig. 3 shows sketches resulting from this step.

3. It became necessary now, in order to carry out the sketches in further detail, that the shapes of certain Indian weapons and tools should be learned. Actual examples of these weapons and tools were available from the school museum. These were brought in, and the children drew them, following the same method as in the case of the previous objects. The weapons were then cut free-hand from paper. The following shapes were studied: bow and arrow, scraper, knife, ax, hammer, etc. (Fig. 4).

4. In order to illustrate a particular story it was necessary to learn how to draw the papoose. The children had pictures and little models of the case

GRADE T — INDIAN SCENES

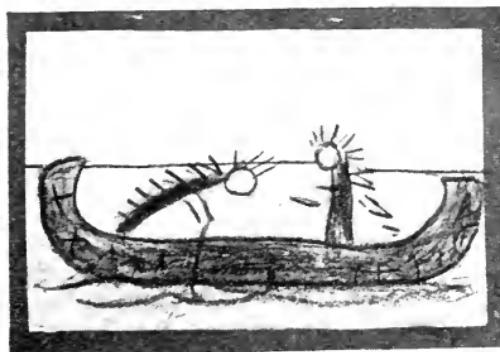


FIG. 3. ILLUSTRATIONS INVOLVING WIGWAMS AND CANOES

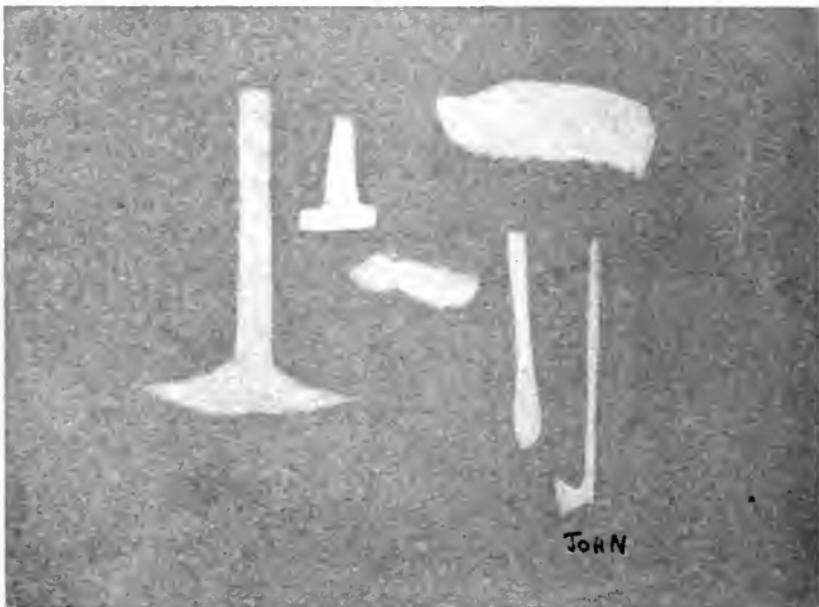
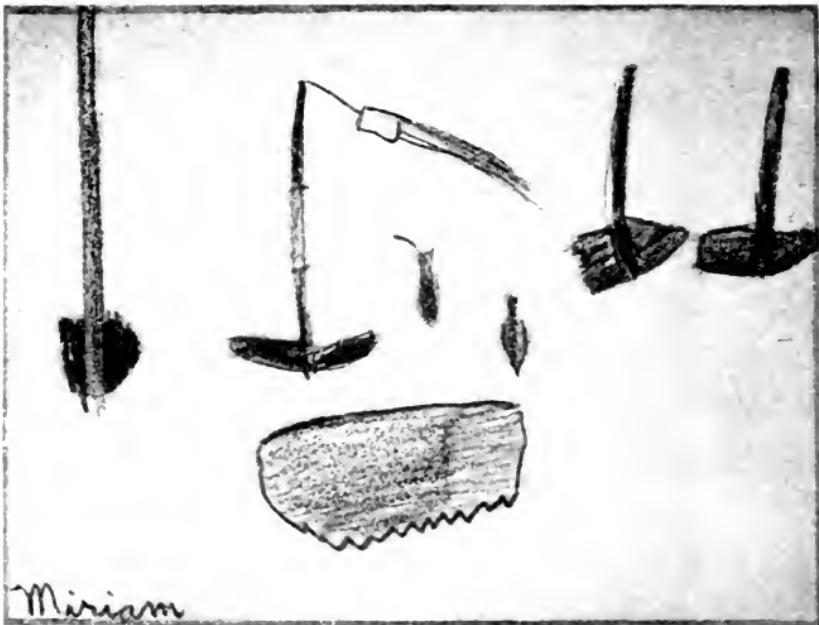
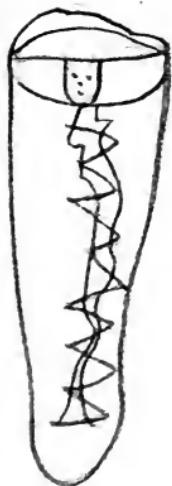


FIG. 4. STUDIES OF INDIAN TOOLS AND WEAPONS



Ruth Davis

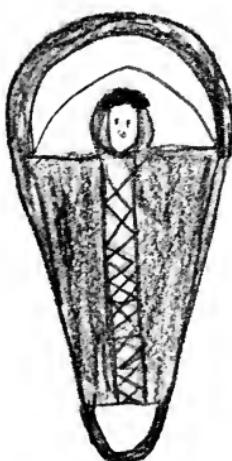


FIG. 5. SKETCHES OF THE CASE IN WHICH A PAPOOSE WAS CARRIED

in which the papoose is carried. The essential lines which showed the construction of the case were dictated by the teacher, because it was somewhat more complicated than the preceding objects. The children were then left free to decorate it as they chose, using



FIG. 6. DRAWING OF AN INDIAN CAMP

suggestions gained from the models and illustrations (Fig. 5).

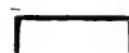
5. At this point the children again made pictures illustrating Indian life. These were more elaborate than those previously made, because of the increased number of objects which they had studied and could introduce (Fig. 6). Care was taken to emphasize the objects which were of most interest.



MOUNTAIN



WAVES



CLOUD



MIST RISING



LIGHTNING



HOUSES IN A VILLAGE



A WHIRLWIND



THE FOUR WINDS



"AN ENEMY HAS
CROSSED OUR TRAIL"

FIG. 7. SYMBOLS FROM INDIAN DESIGNS

6. A simple study of Indian design and pottery was then made. Indian baskets and pottery were brought into the room from the school museum. The children looked these over and selected those designs which interested them most and those which they found repeated many times. They were then told how each design meant something to the Indians, and they compared the elements of the Indian designs with the design units which they themselves made from flowers, fish, etc., for borders (see p. 88). The teacher then drew on the board certain typical forms selected from the Indian designs, for example, Fig. 7. The children practiced making these, until they could repeat them easily, and then arranged them into borders appropriate for use on pottery (Fig. 8). They then cut out pottery shapes, folding the paper before cutting so that both sides would be alike. They decorated these, using several of the designs suggested by the actual pottery. Some study was then made of the colors used by the Indians on their vases, and the children attempted to get colors like these, using only red, black, and white.

7. For somewhat over a week the children spent the time devoted to history and to constructive work in making Indian designs which they had learned, drawing them with colored crayons. Small models of the wigwam were constructed, and ornamented with Indian designs. Later two or three wigwams

GRADE T - INDIAN DESIGNS

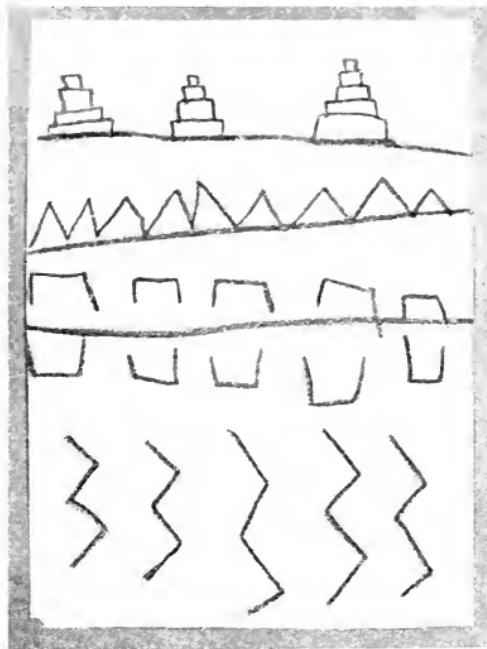
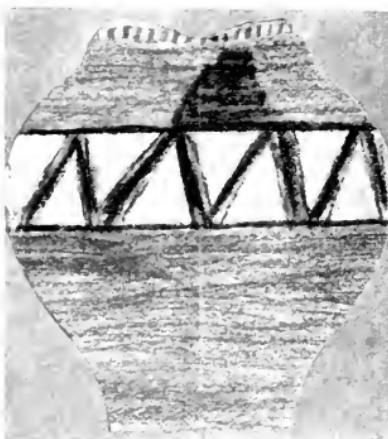


FIG. 8. APPLICATIONS AND ARRANGEMENTS OF INDIAN DESIGNS

large enough to play in were constructed in the school garden by the children. Each child made an Indian costume in school and wore it (Fig. 9). They also made bows, arrows, etc. During the period of this work, trips were taken to the Field Museum,



FIG. 9. INDIAN COSTUMES MADE BY THE CHILDREN

where the children had opportunity to see real canoes, wigwams, weapons, costumes, etc.¹

8. While this work was being done each child was constructing a book which contained his Indian stories and illustrations. The title "Indians" was placed upon the cover. Indian designs were used in

¹ Where such material is not available, pictures and photographs furnish a fairly adequate substitute.

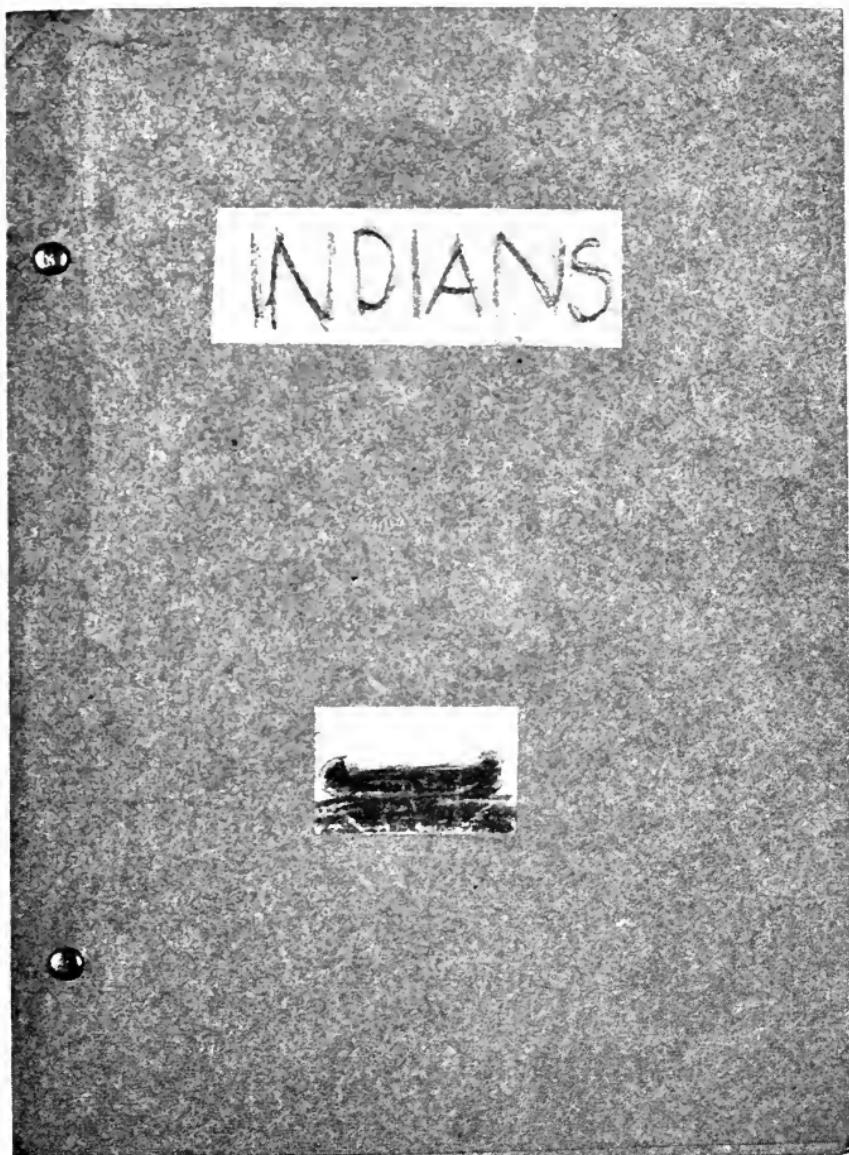


FIG. 10. COVER FOR BOOK OF INDIAN STUDIES

the decoration of the cover, and also throughout the book as decorative units. Each child chose one of the forms of Indian design with which the class had

become familiar during their study and used it as his particular decorative unit. Fig. 10 shows one of these book covers.

In these steps of theme study all the art interests which appear in this grade have been satisfied. There has been the free expression of narrative interest. There has been the building up of a few clear mental images to make narrative expression more complete and satisfying and to form the beginnings of a usable graphic vocabulary. This study of objects has been as thorough and systematic, merely from the point of view of the method employed, as would have been possible had the drawing been a special subject, wholly dissociated from any theme. It has involved practice, and the use of both objects and pictures as reference material. The increasing skill and knowledge have been assimilated at each step by continued drawing of picture stories of Indian life. There has been also a great deal of expression of the more purely aesthetic interests, in the composition of the sketches and in the study and use of elements of Indian design. The influence of seeing someone draw has also been an important factor.

The theme has suggested, intensified, and amplified the story interest. The cumulative momentum of narrative interest has been reënforced by the historical interest. The theme has also provided an important motive for studying composition and arriving

at some genuine artistic appreciation, because the children are themselves composing pictures. In this actual composition the more formal elements of balance, rhythm, and harmony tend to appear naturally, under the impulse to set forth a definite interest forcibly and beautifully. Added suggestions come because the children compare their own drawings with good designs and compositions dealing with the same subject. The value of any verbal discussion of formal elements of composition in order to make them intellectually appreciated at this age is at best slight. Indeed it is a question whether any explicit discussion of these elements in elementary schools is not a hindrance. These discussions make a popular appeal because they present a series of logically definite steps in connection with a somewhat elusive subject. The definiteness, however, is more in the nature of a definiteness of intellectual classification than of æsthetic response, and in the case of elementary-school pupils does not appear to lead to artistic appreciation. In efforts for æsthetic education we have sometimes tried to substitute the mature intellectual pleasure of knowing why a thing is excellent, for the æsthetic pleasure, which may begin at an early age, of enjoying it because it is excellent.

At the close of the study of this theme all the associated interests were given concrete and unified expression in the Indian books which the children made.

GRADE II

Arabs

An important unit of work in the latter half of Grade II is the study of shepherd life. From several subjects equally well adapted for illustration, this one was selected as a center for the theme work in drawing. As a result of the discussion of this theme with the children the following things were chosen to constitute the graphic vocabulary which must be built up if the subject was to be well illustrated: a camel, the Arab tent, the Arab dress, palm trees, and the general configuration of desert landscape. This preliminary discussion as to just what objects will be used to illustrate a given theme accomplishes two ends. It defines the minimum scope of the vocabulary, listing the things which are absolutely necessary, and it gives to teacher and pupils that reasonable justification for the special study of these particular objects which is essential to any vital work.

The steps followed in the study of this theme are here described.

1. *Learning to draw a Camel.* Pictures of camels, and a good toy camel, were placed before the class. Each child then drew a camel as best he could, with no help from the teacher. These results were hung on the front blackboard, and a vote was taken

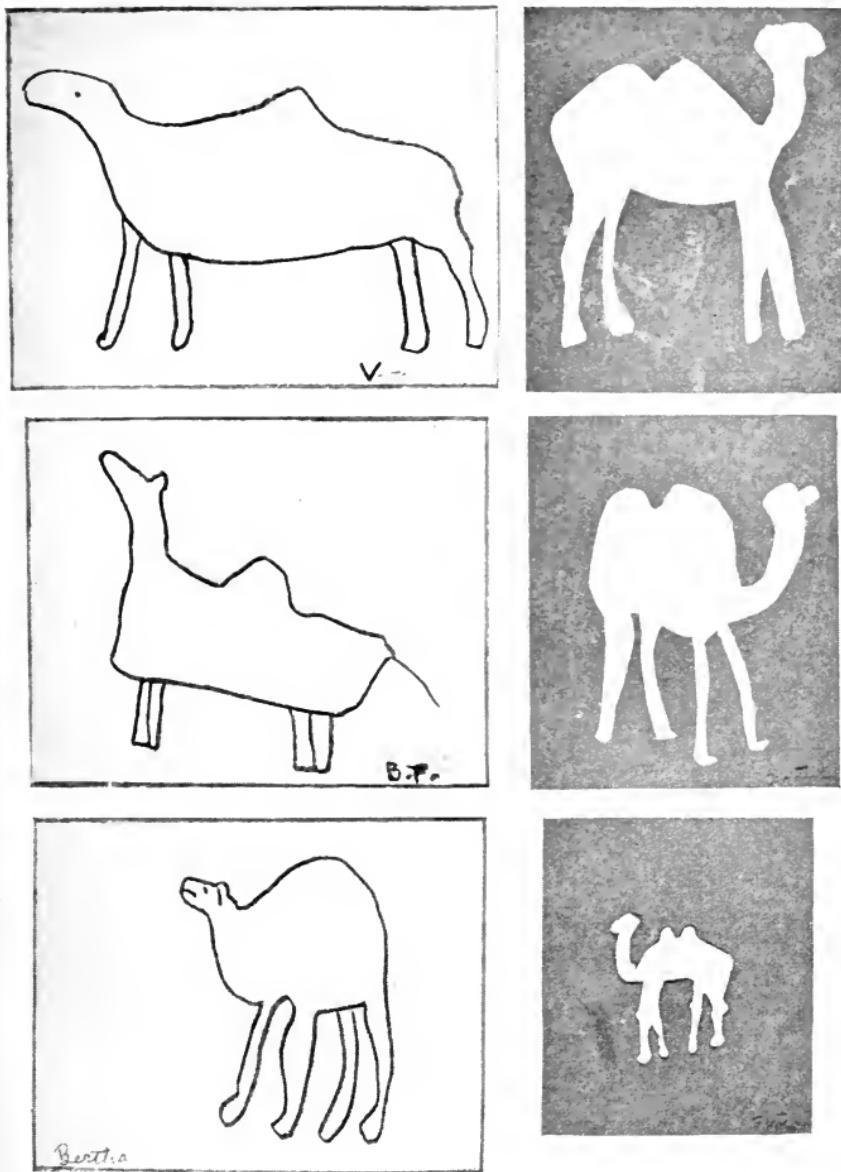


FIG. 11. FIRST DRAWINGS AND FINAL STUDIES OF CAMELS

which indicated the ones that looked most like camels. Through the class criticism it was decided that everyone needed to learn the shape of a camel

much more definitely. The teacher then drew a camel on the board, discussing each line as she drew it and having the children first draw it in the air as they looked at the model or pictures. When this was finished she began again to draw the camel, line by line, on the board, but this time each child drew the same line on paper. The line for the hump was drawn first; then the neck and head, then the line under the body, and last of all the legs. The children then drew several camels on paper and on the board. When all in the class seemed to be having difficulty with a certain part of the camel, time was taken to practice just that line or group of lines, for instance, the line for the back, or neck, or head (Fig. 11). The pictures and model served as sources of reference by which the children continually improved their own drawings. By the end of the second half-hour lesson each child could draw a fairly good camel. From this time on, camels were drawn freely in all sizes and positions for illustrative work.

During this period in which the children were drawing camels, one little boy remarked that he had taught his grandmother how to draw a camel, and then followed similar exclamations from almost every child in the class. Some of them had taught older brothers and sisters to draw camels, and others had attempted to teach the babies in the family.

With other second grades different methods have been used in teaching children to draw the camel, such as calling attention to the general shape of the body first (oval) and adding the parts to this, or letting the children learn the shape by practice in tracing a hectographed copy. However, it was found that these methods took a longer time to secure good results and did not bring to the child the sureness which came through the method described above, namely, by adding line to line and memorizing these as they are drawn.

Experience shows that ability to draw one thing well, although it may become necessary to make the process of learning thorough even in a mechanical sense, is an essential foundation for later spontaneity and originality in which any systematic progress is evident. In later grades, when an object at all similar to the one thus learned is needed, children of their own accord will make such remarks as, "I know how to draw that; we drew it [or something like it] in the second grade."

2. Making a Simple Composition with the Camel. After the children had learned how to draw a camel each child made as good a drawing as he could. Free-hand cuttings of the camel were then made. The camel shape was cut by each child from a light-brown paper and placed on a page for his book, which was of darker brown. He experimented with

the placing, in order to get the most pleasing arrangement within the given space. The resulting arrangements were discussed. The cutting was then mounted and used as an illustration in the history book. One definite item in the necessary graphic vocabulary was thus made ready for use, and the skill of the children in this particular could be depended upon (Fig. 12).

3. *Drawing of Palm Trees.* Pictures of several different kinds of palm trees were shown to the class. Their attention was called especially to the date and fan palms. The children traced with their fingers in the air the apparent lines of a palm-tree shape. They noted particularly the fact that all the leaves grew from the top of the tree. They noted also the shape of the trunk. Different children then came to the board and showed how they would draw a palm tree. The teacher then showed by sketches on the board the characteristics of the different kinds of palm leaves. The children tried to see if they could draw on paper with colored crayons the different kinds of palms so that each could be recognized from the drawing. The instructor found at this point that the tree shapes which had been learned in connection with the Indian work in Grade I contributed definitely to the readiness with which the children now learned the shape of the palm tree. They had a definite tree image with which to

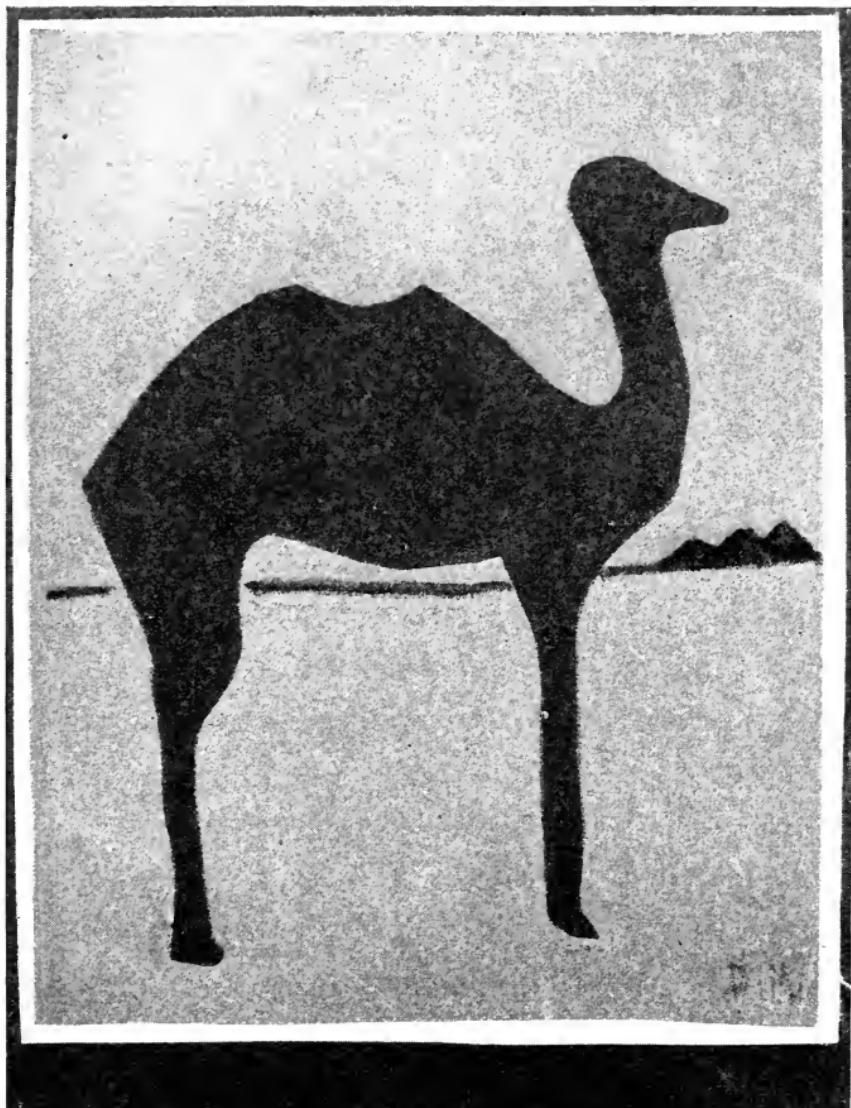


FIG. 12. CHILD'S SILHOUETTE OF CAMEL ON A PAGE OF HIS BOOK
compare the new shape, and this aided them in recognizing its individual characteristics.

4. *Simple Compositions with Palm Trees.* The children discussed the shape of the paper most

appropriate for use in a composition containing palm trees as the principal element. They decided that since palms were tall trees they would have the long dimension of the paper vertical. Quick drawings were made on the board by the teacher, showing the different effects which were produced by placing the horizon line at different distances above and below the center of the paper. The children then experimented with different arrangements of sky lines, using brown crayons on manila paper. The most pleasing of these sketches were afterwards mounted on dark-brown paper (Fig. 13).

5. *The Drawing of Arab Tents.* As a preliminary to learning to draw the Arab tent, the Indian wig-wam studied in Grade I was reviewed. Here again, as in the case of the trees, the object previously learned served to interpret the new form. A number of pictures of Arab tents were then shown, and the children compared the various shapes of these. They traced the shapes in the air and then sketched them on the board, introducing the suggestions they gained from the pictures and from descriptions obtained from their history work. Fig. 14 shows free-hand cuttings of figures learned thus far, grouped in a composition.

6. *Composition Work.* New compositions were now made, introducing, in addition to the palm trees of the previous compositions, tents, camels,

and whatever other item any child cared to put in. The principal elements of these compositions were then discussed, the placing of the sky line and the

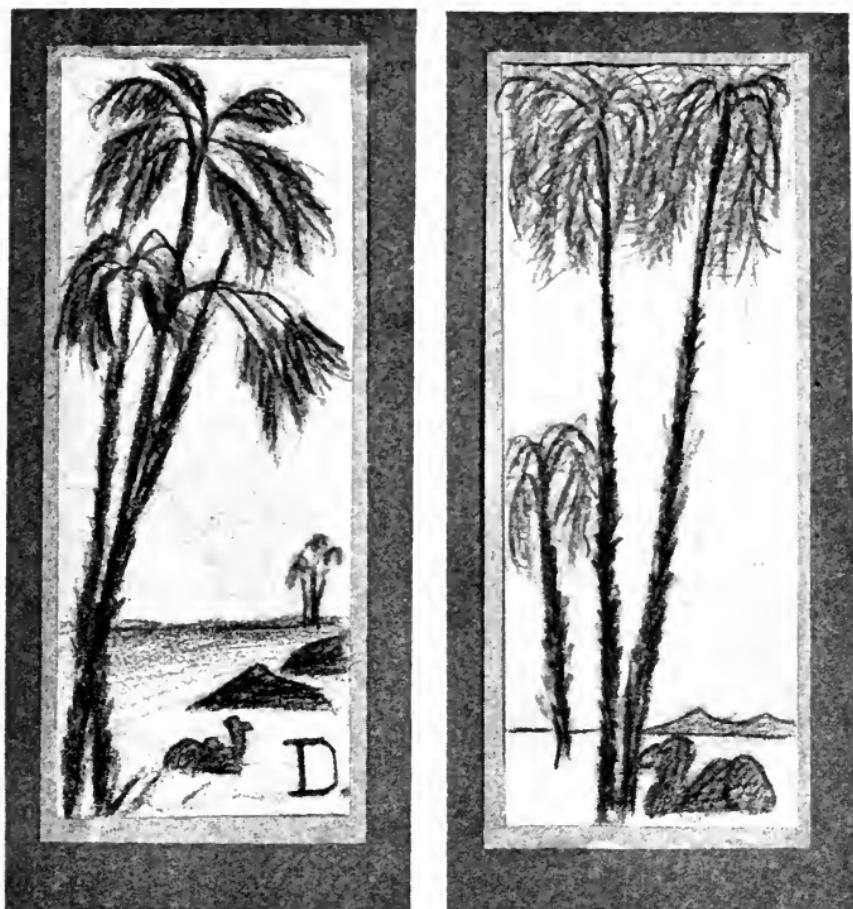


FIG. 13. COMPOSITIONS INCLUDING PALM TREES IN THE DESERT

kind of sky line which would be seen in a desert. The fact was brought out that the sky line of the desert is not always horizontal. The children had already made a trip to the great sand dunes on the

shores of Lake Michigan. During this trip, and after they returned, the children had made sketches of the dunes. These sketches and the recollections of their trip helped the children to interpret the desert scenery. From pictures and from their recollection of the dunes they then made notes of the



FIG. 14. COMPOSITION MADE BY GROUPING FORMS CUT FROM PAPER

colors which should enter into a desert scene. They then made sketches of the desert with soft colored crayons, as illustrations for an original story of Arab life which they had written in connection with their history work.

7. *Pictures drawn to illustrate an Original Story about Arabs.* Each child chose the most interesting

event in his own story. The children were then asked the following question: If you made a picture illustrating this event, what would you need to put into your picture? In answer, each child made a list on the board of what he would include in his picture. In all the compositions made by the children, these lists proved of great value in helping them to get the general plan of their picture in advance and also to decide definitely upon what they needed to use. These lists were then discussed, and the things common to all or most of them were noted, as well as the special things needed in individual cases. The points of composition which had previously been taught were now called to mind, and each child made his picture. Fig. 15 shows some of these illustrations for an Arab story.

8. *Designing a Book Cover for the Arab Story, "The Lance of Kanana," by H. W. French.* The children discussed what it was absolutely necessary to put on the cover. The first element they decided upon was the title. This title, "The Lance of Kanana," was printed on the board to give the children some idea of a good style of lettering for a title. They looked at several books and noted the arrangement of the titles on the covers. Each child then cut out of manila paper a rectangle to illustrate the size and shape which he thought the actual printing of the title ought to occupy on the cover.

Several children then stood before the class, and each placed the rectangle he had chosen upon a shape drawn on the blackboard to represent the size of his cover and showed the class where he thought the printing would look best. These arrangements were compared with those of several actual book covers. The class then gave their opinions of these plans. When each had decided upon the arrangement that suited him best, several of the children drew upon the board the shape of their book covers and showed within them the space they had decided on for the title.

They then talked over the question as to whether anything else besides the title was needed in order to make the cover more pleasing, and examined various book covers to see what appeared in addition to the title. Each child experimented by placing a spot on the cover, somewhere below the title, and moving it around to see where it would look best within the space. This spot was later replaced by a decorative unit. They then discussed what should be the nature of this unit. Different suggestions were offered as to interesting units which could be obtained from the material of the story itself, for example, the camel, the palm tree, the tents, and Mount Hor. Each child then chose his unit and drew it in the form which seemed to him most appropriate as a decoration for the book cover. The children then



FIG. 15. ILLUSTRATIONS FOR AN ARAB STORY

printed the titles and drew the decorative units on a piece of paper, making them the exact size in which they were to appear upon the finished book cover. As soon as any one of these was satisfactorily completed, it was transferred to the book cover by

blackening the back of the piece of paper with a wax crayon and tracing over it (Fig. 16). The final results were then put up before the whole class and discussed. Fig. 17 shows arrangements of these units used in other ways; for instance, as borders for pages.

9. The children talked the story over in order to select a brief theme which seemed to them to represent the most

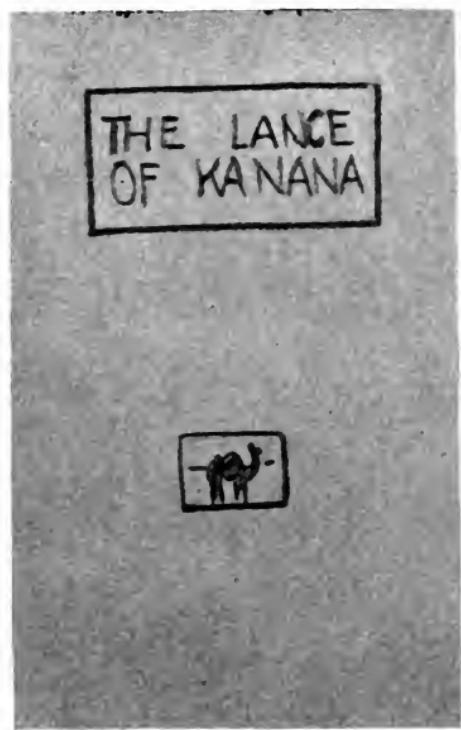


FIG. 16. BOOK COVER

important phases of the story. The class was then divided into groups, and each group chose several scenes, for the completion of which its members were responsible. The children then made and submitted for discussion rough sketches of these scenes. After these had been talked over and accepted, the finished

drawings were made. In all these illustrations Arab people were drawn freely. The children first made skeleton drawings of figures in action. Later they filled out these drawings and added distinctive features of Arab dress, following suggestions given in pictures and descriptions. The graphic vocabulary

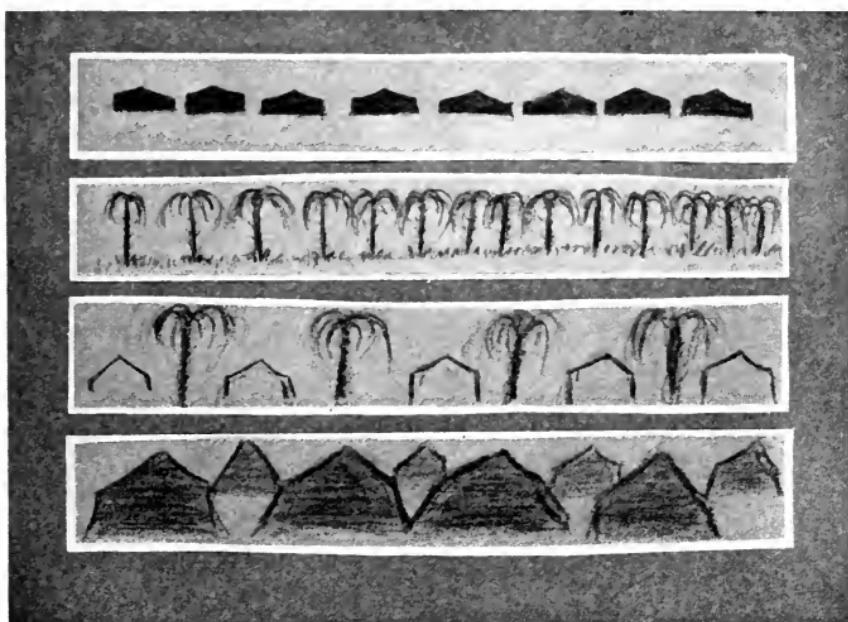


FIG. 17. UNITS ARRANGED AS BORDERS

which had been learned during the first few lessons of this step proved to be necessary for the completion of these illustrations. The skill which the children had gained by systematic practice gave them the power to devote their whole attention to the telling of the story without being hindered by too many technical difficulties. No one appreciated more than the children

themselves the freedom in expression which they had gained by painstaking preliminary study. Fig. 18 shows scenes from "The Lance of Kanana."

Several lines of supplementary work developed from this topic. For example, in the constructive

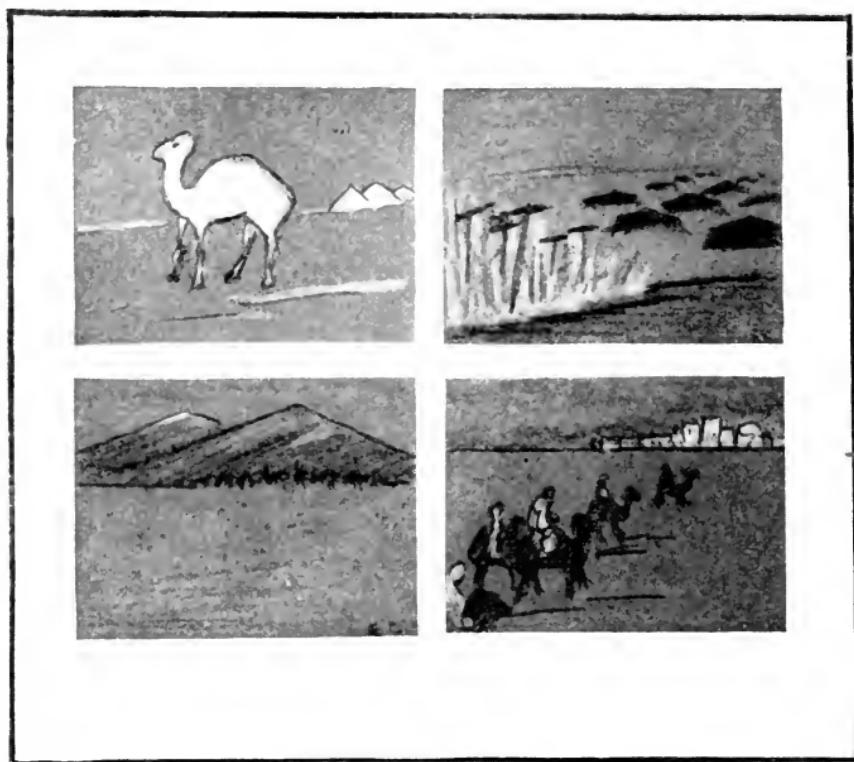


FIG. 18. ILLUSTRATIONS FOR "THE LANCE OF KANANA"

work a representation of an oasis was made on the sand table by the children. Each object which they had studied in the drawing was constructed and placed in this. The camels and sheep were modeled in clay, the tents were made from cloth, the palm

trees were constructed by means of colored papers and sticks, and people were represented by dolls dressed as Arabs. As another instance, for the reason that Christmas occurred at about this time, the children made calendars for Christmas gifts, on which were represented scenes suggested by the story of the three wise men of the East (Fig. 19). These simple compositions involved the use of the camel along with other forms such as palm trees and Arabs, which the children had had in the work of the previous weeks.



FIG. 19. A CHRISTMAS CALENDAR

Out of this topic also developed some study of oriental rugs. In connection with their work in textiles, each child made a simple loom and wove a rug. The design was worked out in the following steps: First the children were told to draw the picture of the sort of rug they would like to make. In addition to studying rugs which were brought in as examples, they were taken to a large store and shown different sorts of oriental rugs. From these sources they obtained suggestions as to the patterns of their own rugs. The type of loom which they used limited their patterns to a border across the rug. The problem thus became one of the size and position of this border.

The children cut rectangles of the size of the rug from paper and also cut strips of a different-colored paper which should represent the borders. They then experimented with other paper patterns, trying the effect of strips of different widths and moving them back and forth until the most pleasing division of spaces was decided upon. They then pasted these strips on the paper patterns. The results fell into the two general types shown in Fig. 20. The first one, *A*, was accepted by the majority of the class after discussion. The looms were constructed from heavy cardboard. The spacing of the holes for the stringing involved careful measurement. This was taken up as a problem in mathematics and done during

the period devoted to arithmetic. The looms were then strung up, and the rugs woven according to the pattern. These rugs were used in the Arab tents in the oasis made on the sand table by the children.

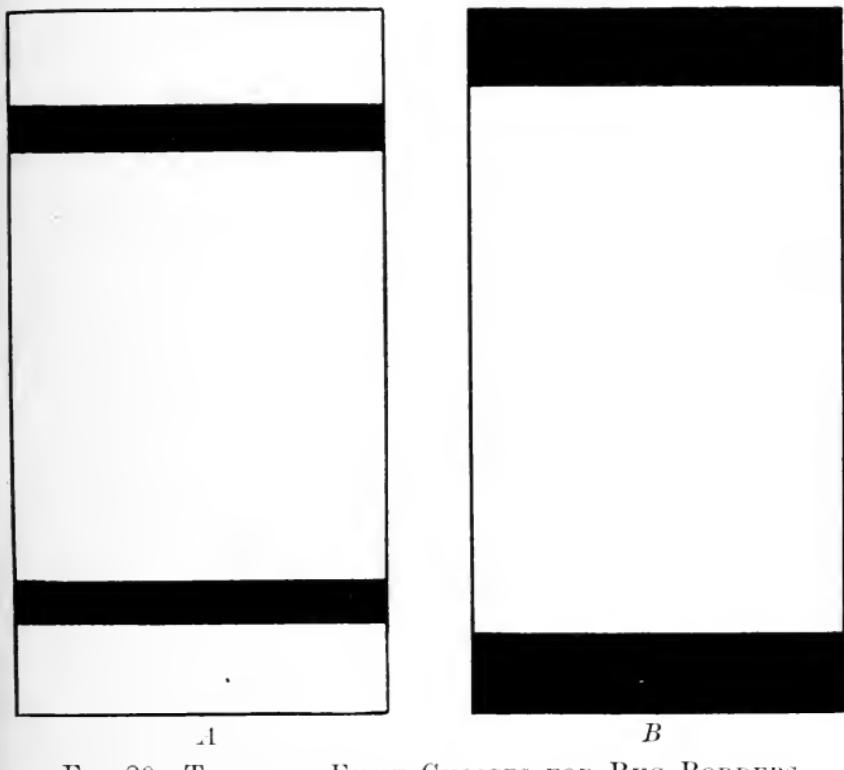


FIG. 20. TYPES OF FIRST CHOICES FOR RUG BORDERS

In the theme work of this grade it will be noted that the drawing vocabulary of the first grade contributed to the new requirements of this theme of the second year. For example, the previously acquired knowledge of the Indian wigwam helped the children to draw the Arab tent. In design, the new interest in conventionalization of natural forms,

as shown in Fig. 17, is added to experimentation in good spacing.

The theme is associated not only with history and with pictorial art but also with good designs and with constructive processes, as in the case of the rugs, and also with the local landscape, as in the comparison made between the desert of Arabia and the dunes of Lake Michigan. These are mutually reënforcing interests.

GRADE III¹

Vikings

In the history work of the third grade the Norse Vikings were taken as typical of an exploring and seafaring people. Special emphasis was given to such topics as the Viking homes, boats, customs in war, feasts, dress, weapons, and life upon the sea. The geography dealt with the character of the country, its fiords, mountains, and glaciers, and also with the life and occupations of the Norwegian people of to-day, the main object being to give clear mental pictures which would form a background for interpreting the life of the old Vikings.

The drawing based upon this subject of the Norse people was introduced through a study of the Viking ship. The children had previously worked out the

¹ Reprinted in part from the *School Arts Magazine* for January, March, and April of 1914, by courtesy of the School Arts Publishing Co.

development of transportation on water and had made drawings which showed the different stages—log, raft, dugout, rowboat, canoe, sailboat.

The class was taken to the Field Museum, where they saw the great Viking ship which actually crossed the ocean. They made a quick sketch of it, guided by a few definite questions from the teacher. The children knew the general lines upon which any

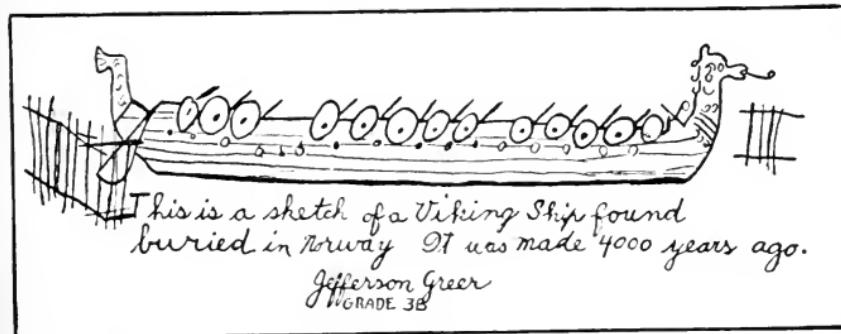


FIG. 21. STUDY OF A VIKING SHIP, FROM THE OBJECT

boat is constructed, for boat shapes had been constantly used since the first grade. In this way the characteristic lines of a boat had become a part of the graphic vocabulary. In the third grade, children were able to elaborate this general form by adding to it the particular characteristics necessary to represent a boat of striking individual character. Thus they had a good basis for the drawing of a Viking ship. Fig. 21 shows the first sketch of the ship at the museum.

From these sketches, together with many pictures and a small model of a Viking boat, the children

worked out a good composite drawing on the board. In doing this a drawing was started by one child, and every other child contributed what he could

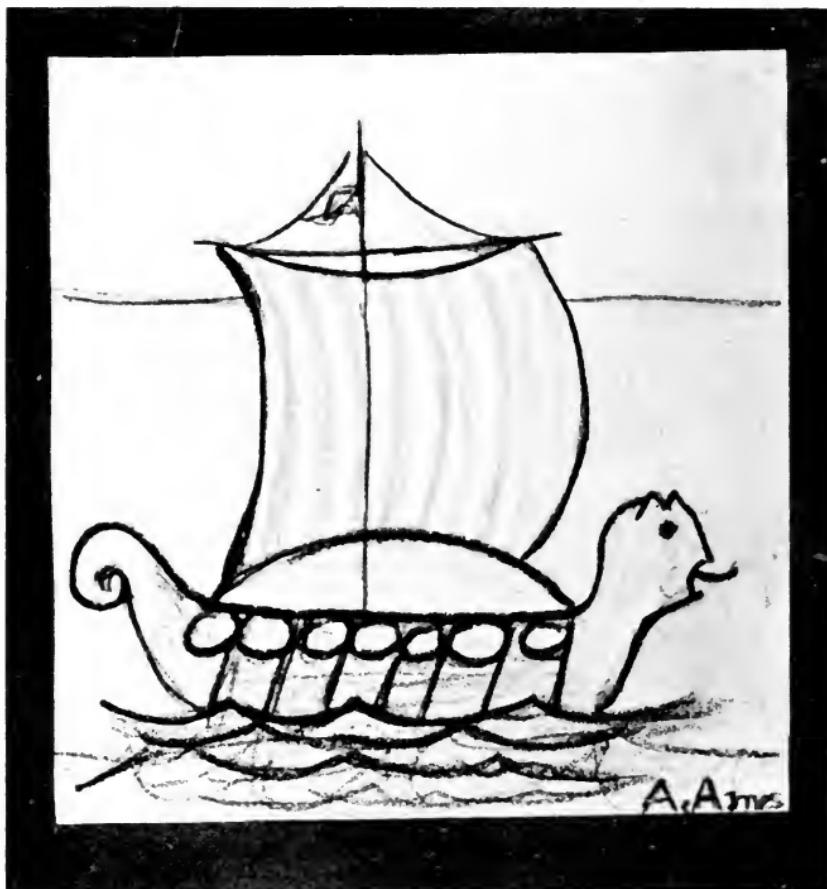


FIG. 22. FIRST COLORED STUDY FOR ILLUSTRATION

and thus had a part in the completed result. At this stage the drawing was criticized by the class as a whole and corrected accordingly by individuals. After this drawing had been satisfactorily finished, each child drew one for himself, first at the board,

then on paper. Meanwhile, in the history period, the class was learning how the boats were made, the colors which the Vikings used, and other details. Each child made a good drawing of a ship and colored it (Fig. 22).

Little attention was paid at first to the dragon-head on the prow, but as soon as the children could

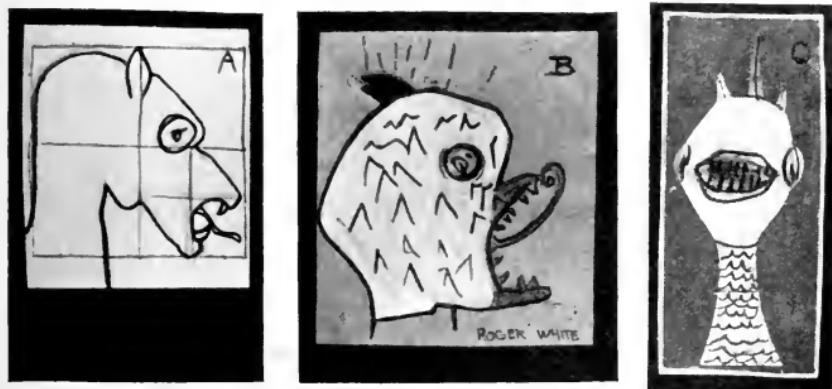


FIG. 23. STUDIES OF THE DRAGON-HEAD

draw the ship with considerable ease they asked to be shown how to draw a better dragon-head.

This was taught by a method different from that used with the ship. The principal lines in a dragon-head were dictated to the children, the teacher drawing them on the board first, to show the result as a whole, then dictating a line at a time while the children drew on paper. Fig. 23, A, shows a simple way of fitting the dragon-head into a rectangle. This gave the children a diagrammatic scheme for drawing the head in good proportions. Fig. 23, B,

shows the finished head after it had been cut out and mounted. The front view of a dragon-head was worked out by the same method. The result is seen in Fig. 23, C. Through this mode of procedure every child made a good dragon-head.

The following question arises here: After having learned the form in this way, are the children able to draw the dragon-head without the rectangle and adapt it to the needs of the sketches? The answer is shown in the results. For the first few times a dragon-head is drawn, most of the children continue to use the rectangle as an aid to the drawing. Then they gradually, and of their own accord, omit the rectangle and draw dragon-heads freely with just as good results. Fig. 24 shows drawings of ships, made after the practice on the dragon-heads. The rectangle was not used here. In every case it is true that the heads differ and do not conform to the shape given at first, yet the characteristic lines are retained. The front view of the ship was next worked out, by the same method that was used for the side view. The fact that the children had the ability to draw either front or side view gave them great freedom in their illustrative work for the Viking book. Fig. 25 gives sketches of the ship, showing the front view.

The next step was the free-hand cutting of a ship, showing both front and side views. These views are

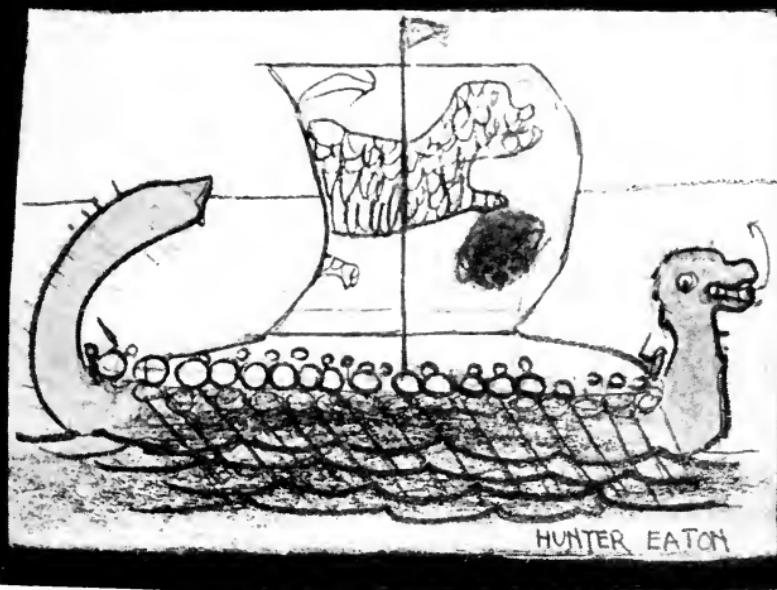
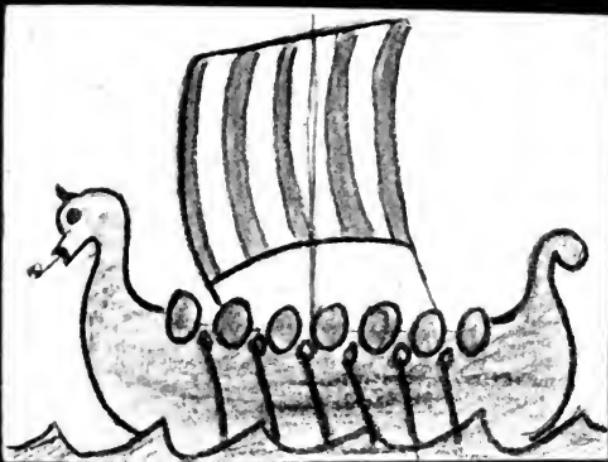


FIG. 24. FINAL DRAWINGS SHOWING SIDE VIEW OF SHIP

seen in Fig 26. The mounting of these to look well on a page was given as much importance as the making of the drawings.

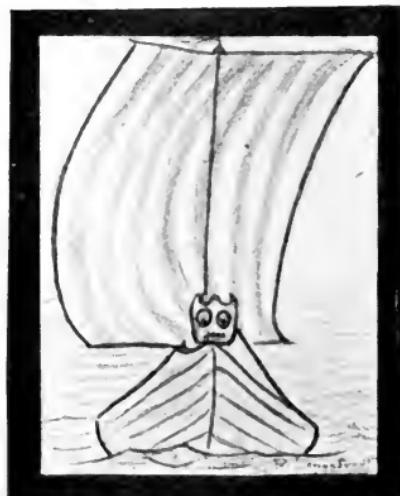


FIG. 25. STUDIES SHOWING FRONT VIEWS OF VIKING SHIPS

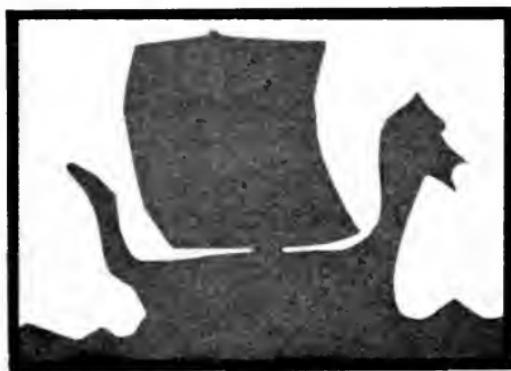


FIG. 26. SILHOUETTES CUT FROM PAPER

As reading, along with this history, the class used Jennie Hall's "Viking Tales." This is a source from which the children themselves can get definite

information. They learned from stories in this book how the Vikings made their weapons. In the composition periods they wrote original stories in which they imagined that they were the sons of Vikings, and they told how they made their ships and weapons. As they knew how to draw a ship, illustrations for that part of the story were easily made,

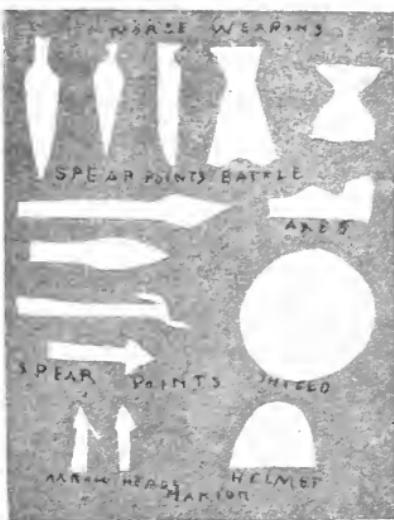
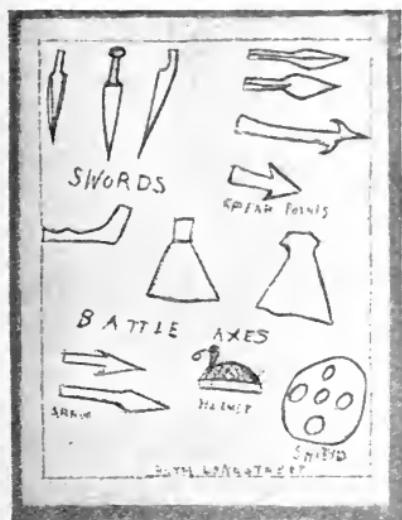


FIG. 27. DRAWINGS AND SILHOUETTES OF WEAPONS

but as yet the children had no very clear ideas of the Viking weapons and armor. They felt the need of definite information about these things and asked to be shown how to draw them.

The children looked at many pictures of swords, spears, shields, helmets, etc. They could find these in their reading book, "Viking Tales." Then the teacher made upon the board drawings of several

kinds of each weapon, while the children watched her. As the next step, she cut from paper, free-hand, with the class, the weapons she had drawn. The children made several cuttings of each, until satisfactory

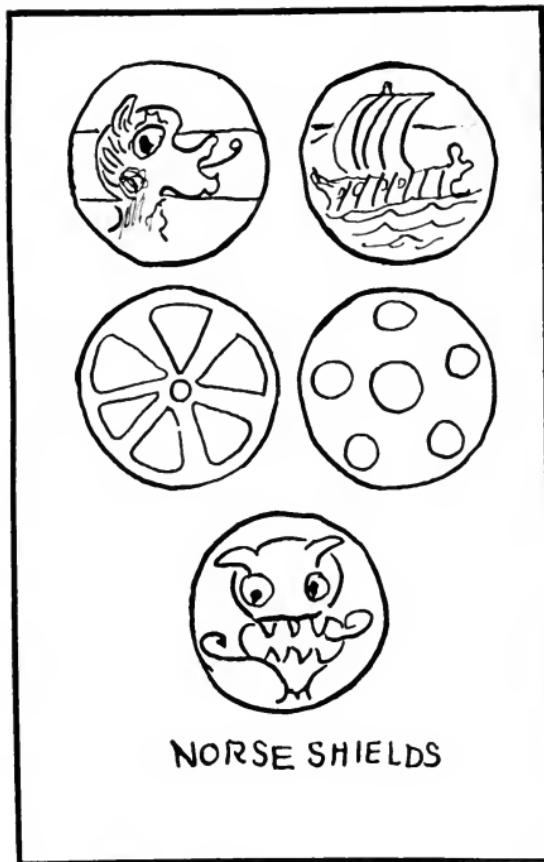


FIG. 28. STUDIES OF NORSE SHIELDS

Norse shields were given the children, which they either used as they were or varied in some slight measure (Fig. 28).

The children were accustomed to making action lines to represent people, but some special practice

shapes were secured. These they mounted to make a page for their books (Fig. 27). By the time they had done this cutting, they knew the shapes well enough to make some good drawings. These were then freely used in the illustrative work, as will be seen in some of the following illustrations. Several typical designs for

was necessary in order to show Vikings fighting, or on horseback, or in the feast hall. Consequently a few lessons were spent in illustrating, on the board,

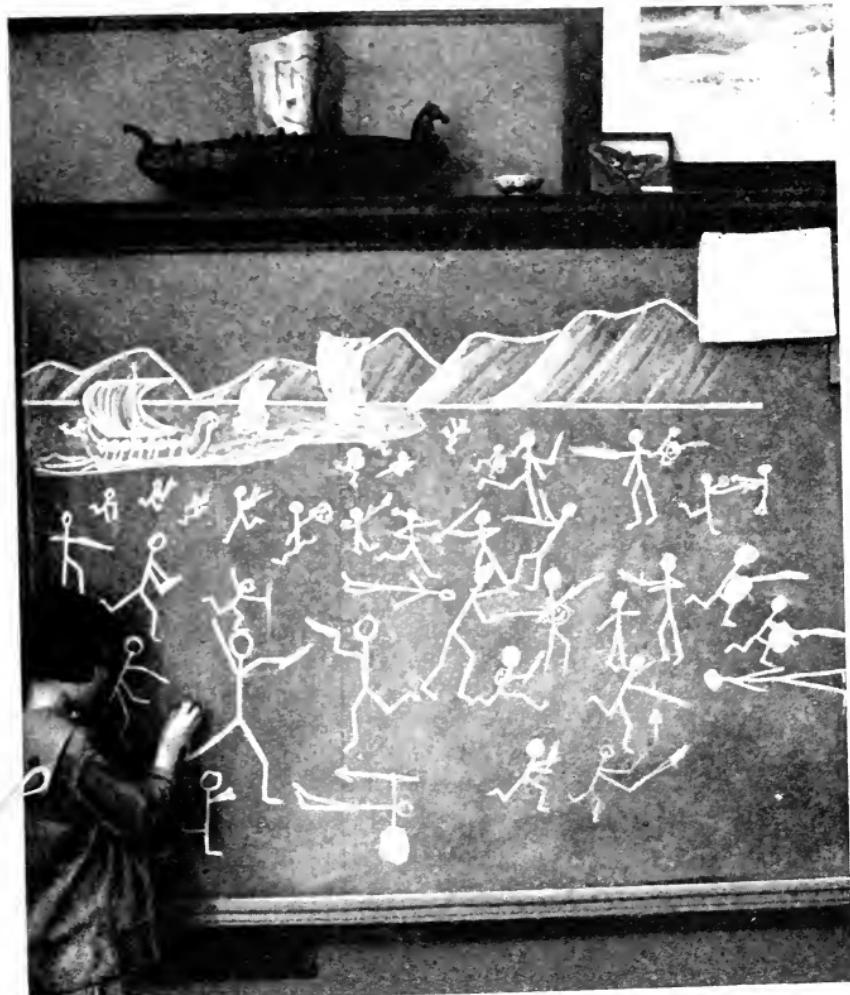


FIG. 29. BLACKBOARD SKETCH OF VIKING BATTLE

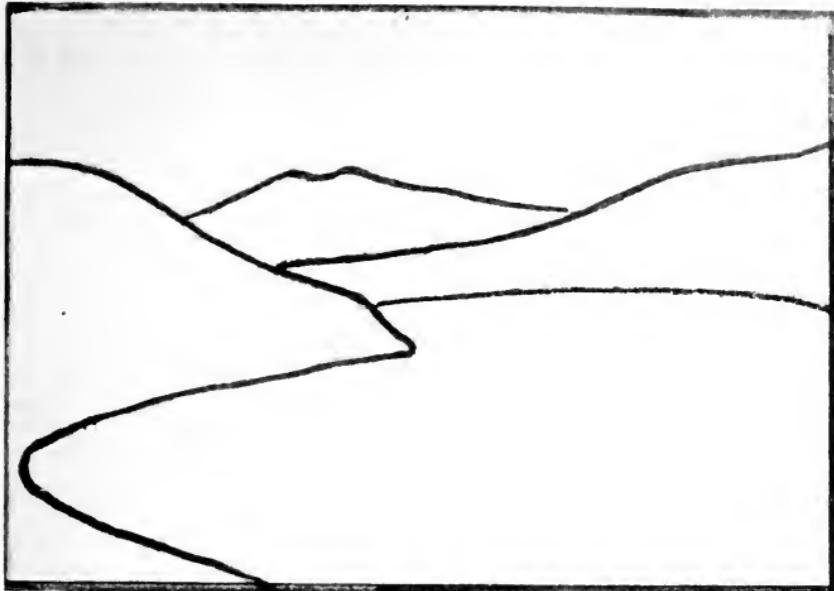
a battle. The picture was started by a few children in the class and added to day by day until the board was full of these fierce characters—some

hurling spears at the foe, some struck by spears and falling off their horses, some having hand-to-hand fights. Others were running away in terror. Ships were seen burning in the distance, and many other interesting features of the fight were shown. If there was any doubt as to the direction of the lines

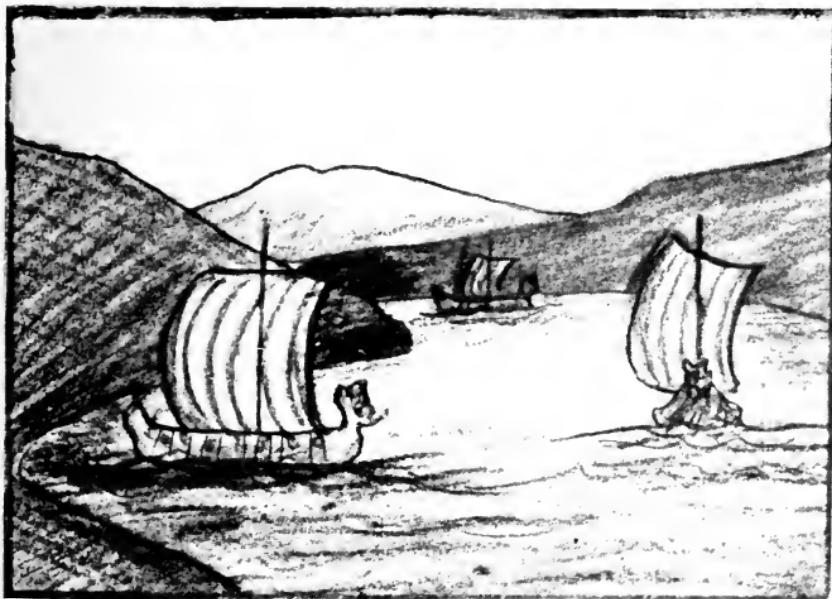


FIG. 30. VIKING WARRIORS

in these figures, the children took the attitudes themselves and were then able to represent what they wished. Fig. 29 shows a part of this board work. The value of this practice is in the resulting freedom which the children show in the work for their books. These action lines can be filled out in a simple way. Fig. 30 shows examples of these.



A



B

FIG. 31. TWO DRAWINGS OF NORSE LANDSCAPE
A, hectographed outline; *B*, filled-in composition

The next step was the making of simple compositions as illustrations of Norse life. Little stress was put upon the drawing of the mountains and fiords. The children were left to represent these very much as they wished. However, in order to give some suggestions as to how to go about it, they were

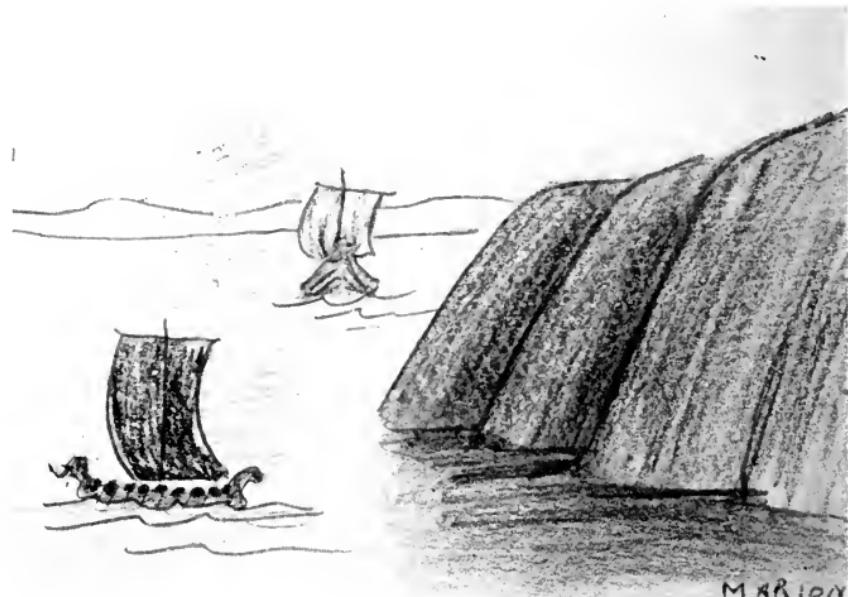


FIG. 32. FINAL ILLUSTRATION FOR A PAPER ON NORWAY

given hectographed copies of a Norwegian landscape. Fig. 31, *A*, shows the hectographed outline, and Fig. 31, *B*, the filled-in sketch. From the many pictures which were before the children in the room, they were able to choose the colors for the mountains and water. Then they drew one or two Viking ships in the fiord. Before this was done, there was some class discussion as to good and bad places for these

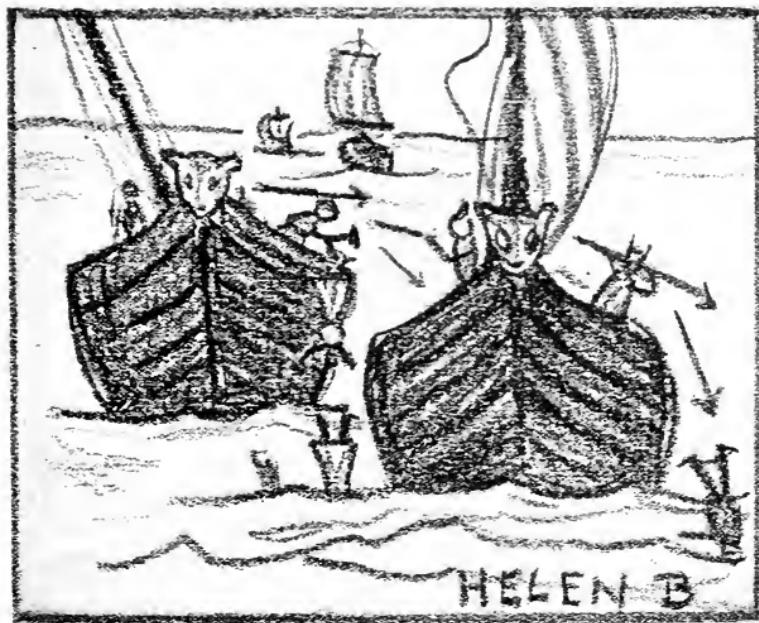
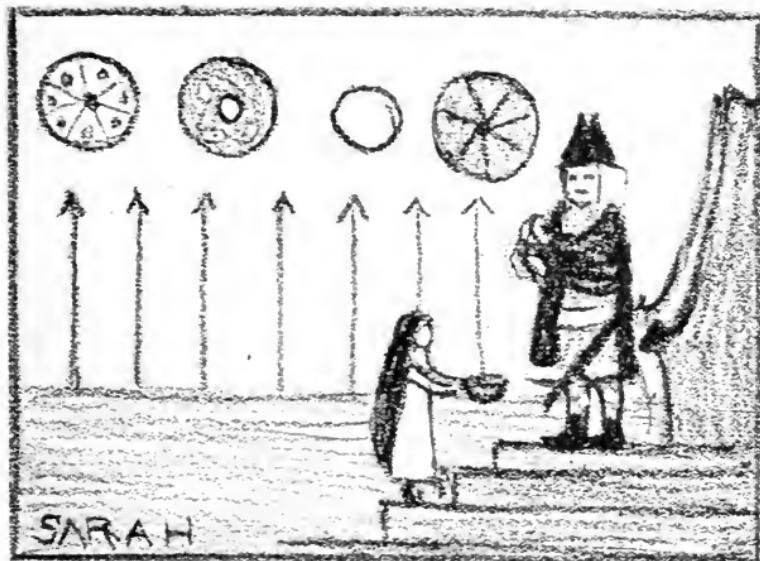


FIG. 33. A CHRISTENING AND A SEA BATTLE

ships, the children giving reasons for their opinions. In this way they learned something of the elements of composition. The drawings were mounted and used to illustrate a paper on the scenery in Norway (Fig. 32).

The question may be asked: Has the teaching of certain objects by a series of definite steps, so that they are learned by heart and thus form a graphic vocabulary for this Norse work, limited or made mechanical the free expression of the children? This can be answered best by the actual work of the children, as shown in Fig. 33.

The steps in the constructive work and design involved in the making of a Viking book were as follows: Many written papers and illustrations for the book had been completed before the covers were actually made. The question arose as to the kind of covers needed. The children selected the color from samples of cardboard. In the arithmetic period the class worked out the dimensions of the covers, the number which could be cut from one sheet of cardboard, and then the number of sheets needed for the whole class. When each child had his two covers cut he was given a strip of cloth binding to hold them together and also some transparent inside binding to which he pasted his fly leaves. He could then fasten his pages into the book by means of brads and put them in or take them out as he desired.

As papers were finished they were put directly into their proper places in the books.

The children had other constructive work in this Viking study, though it was not directly connected with the making of the book. For example, they constructed a feast hall out of cardboard and set up the entire Norse home upon the sand table. They made their own spears, shields, helmets, and drinking horns for a Viking story which they dramatized.

The first and most important problem in design was the decoration of the book covers after they were made. The children first decided upon the necessary decoration — the title and name of the author. Then, as they wished for some decoration which was suggestive of the contents, they decided upon a spot in which they would work out an appropriate unit. They were thus limited to the placing of the two spots upon the cover, one for the title and name of the author, the other for decoration. Each child cut out of drawing paper several rectangles of different sizes, in order to see which looked best for his larger spot. After class criticism of many of the sizes and placings chosen, each child kept the one that seemed to him most satisfactory. This rectangle was spaced for the letters needed in the title and name and then printed with single-lined letters. The following questions were written on the board, so that every child might test his own lettering:

1. Do the letters fill the space?
2. Are they straight?
3. Can they be easily read?

Before the label could be put upon the book cover it must first be transferred to a piece of tan paper about the same size, as this paper was to be pasted on the dark-green covers.

The next step was to make the decorative unit. The children were left free to have a unit of any shape that was pleasing to them. Many chose circles which they decorated as shields or filled with dragon-heads; others took small rectangles upon which a ship or some weapon might be placed. They were transferred upon the same kind of tan paper that was used for the titles.

After these two spots were transferred and ready to be pasted upon the cover, the question arose as to the best possible placing for them. Rectangles were drawn upon the board in the shape of the cover. Within these some of the children showed what they considered a good arrangement for the two spots. The majority of the class were usually agreed as to what was good spacing. After the decision had been made, each child pasted his title and unit on his cover. Fig. 34 gives one of the finished book covers.

Upon examining books, the children found that each one had a title-page; consequently their Viking books must have title-pages. Some of the

children used for this the same printing which they had designed for the cover by simply transferring

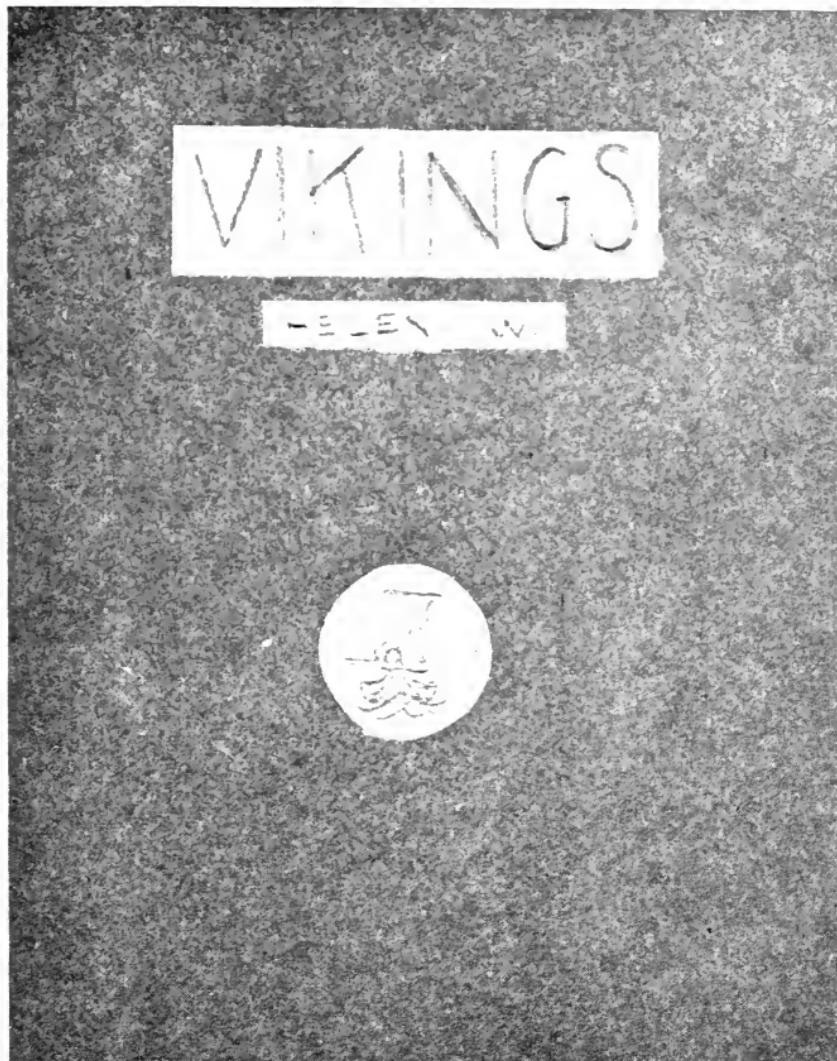


FIG. 34. COVER FOR THE VIKING BOOK

the original directly to the title-page; others made new titles. The emphasis here was put upon clear lettering and good spacing (Fig. 35).

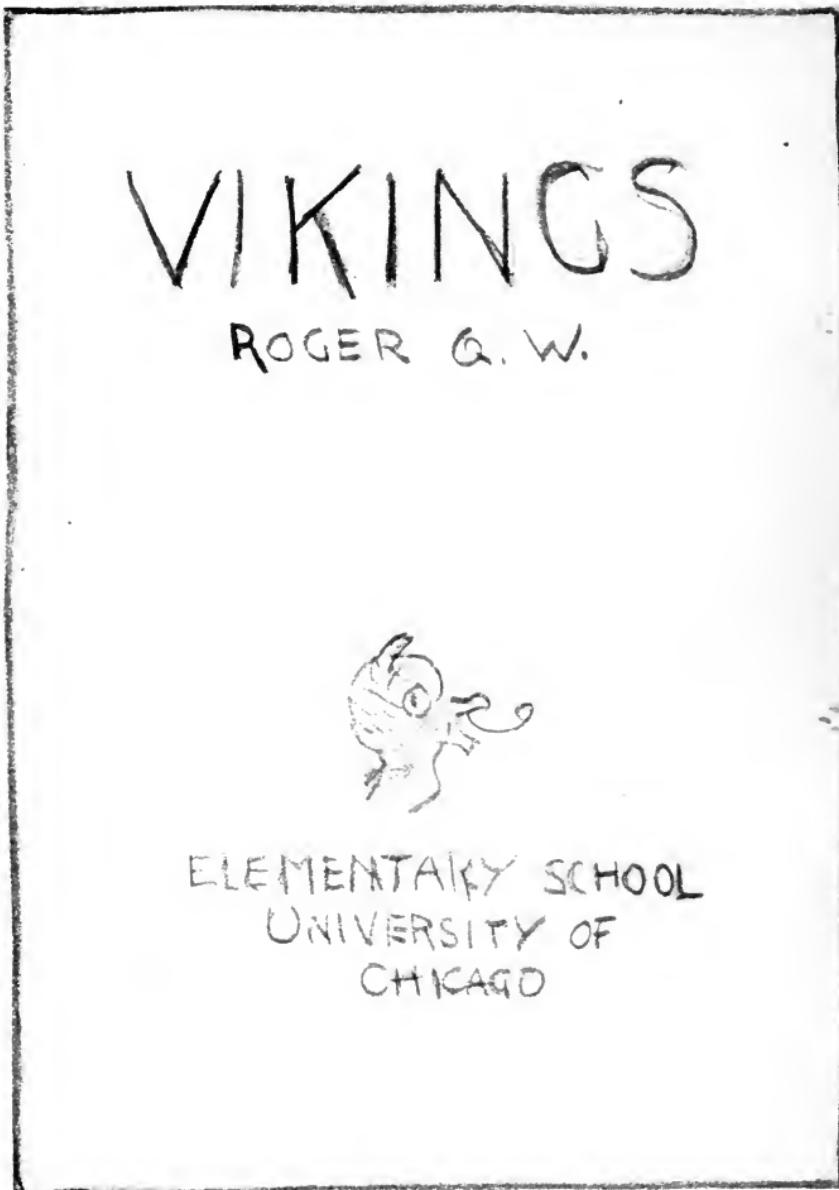


FIG. 35. TITLE-PAGE FOR THE VIKING BOOK

When the book covers were completed, and the flyleaves and title-pages in, the children began to arrange their written work and illustrations in the

sequence which had been decided upon by the class as a whole. All the written papers were planned so that the spacing was pleasing ; each page had equal margins on the sides and a wider margin at the bottom.

Throughout the year the class had experience in making rhythmic borders, using as units objects which they had drawn or which were in the room. After seeing good examples of decorated pages, they wished to decorate the pages of their Viking books. They therefore suggested that they do so by means of these rhythmic borders. Consequently many borders were made, using units from the Viking work. The children made their borders as nearly as possible suggestive of the story upon the page which was decorated. Fig. 36 gives a page taken from one of the Viking books.

After the book was completed the pages were numbered, and the table of contents and list of illustrations were made. These pages were also decorated by borders.

Some of these books contained over seventy-five pages, others had less, but each book represented the best work of the child who made it.

As an outcome of making a completed piece of work in this carefully planned way, these results may be noted :

1. Every child in the class had learned, by a definite method of procedure, to draw certain objects well.

2. When children have learned to draw things confidently and well, they use them freely in composition and modify the appearances to suit conditions.

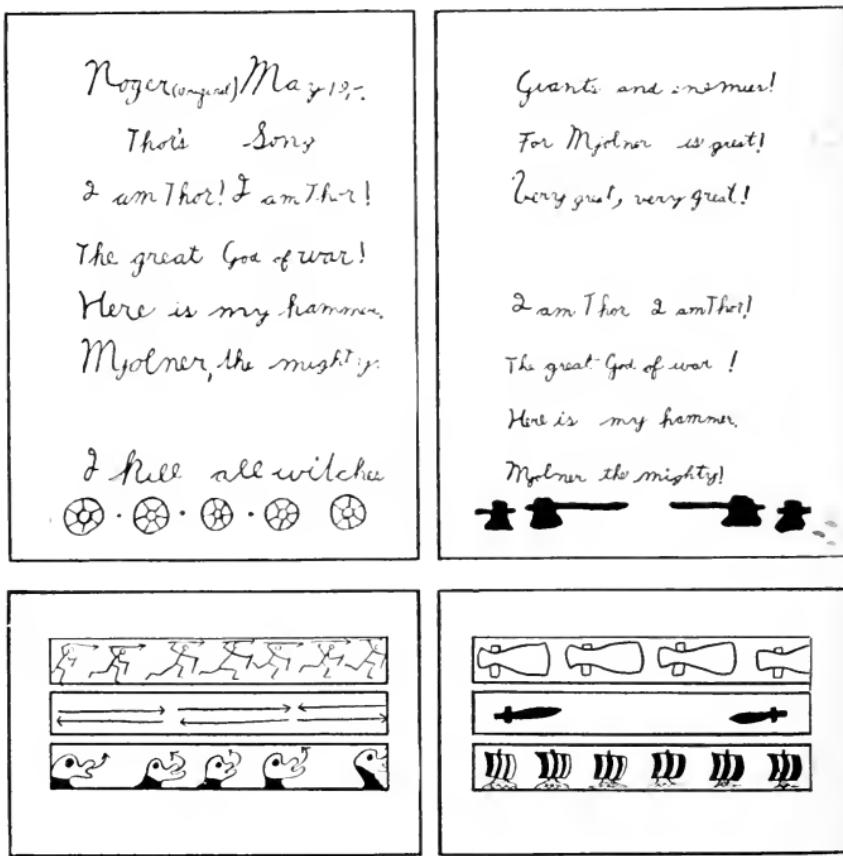


FIG. 36. PAGES AND PAGE BORDERS FROM THE VIKING BOOK

3. This systematically acquired knowledge of particular forms does not end in mechanical results. On the contrary, it proves to be a starting point for attaining an originality and spontaneity which have a range impossible to the limited kind of freedom in using crude symbols that results from untrained work.

4. The children gain some idea of good spacing and arrangement, which are the foundation of decorative design and of pictorial composition.

In this one completed piece of work the child has compiled and related materials from the work he has done in drawing, history, geography, literature, reading, composition, writing, and spelling during a period of three months. It is a result which is a permanent concrete thing and helps to render lasting and vital the different lines of interest which have been awakened.

GRADE IV

Greek Life

This topic occurs in the history outline of Grade IV and was utilized as being the most interesting subject for drawing. The first need in this topic was of books in which to keep written work and illustrations. Here was a demand for design, because the style of these books should be in keeping with the subject. Therefore every opportunity to make them Greek in style was utilized.

1. *Cover for the Book.* The children discussed the necessary elements which would enter into the making of a cover; for example, the title, author's name, etc. They then talked over what might appropriately be used as decoration, and the following point was decided upon, namely, that the decoration should

be suggestive of the contents. They examined books from the library which referred to Greek life, and noted the general plan and design of the covers. They then decided that the decoration might be in one of two forms, either a single unit or a border. This was the first time that a border had been used in ornamenting a book cover. The children made quick sketches in order to show the plan which each would prefer for the cover. The result was different in each case. This gave opportunity for class criticism and for mutual comparison of results. In the light of these suggestions the sketches were then enlarged to the full size of the cover, and each child made his as satisfactory as possible. The children then worked directly on the cover, sketching where the units and the borders would later be drawn in and completing the general plan. The final form of the designs was postponed for further study.

2. *Study of Greek Designs.* Examples of Greek designs from books, pottery, architecture, etc. were studied, and the children made tracings of three or four simple and typical designs for the sake of gaining familiarity with the forms and some appreciation of the style. An unexpected interest on the part of the children was apparent as a result of this study. They became interested in the scheme of color. They found pleasure in the technical processes, particularly in the free sweep of the brush required to produce

the forms, and they enjoyed also searching for examples of Greek ornament and reporting where they had found them. They gathered quite a list of Greek designs which they had seen elsewhere. In the course of this work each child made a page of Greek designs for his book (Fig. 37). The children then experimented in adapting some of these designs for use on their covers and selected one to be drawn on the cover with a black crayon. Fig. 38 shows preliminary sketches and the final cover.

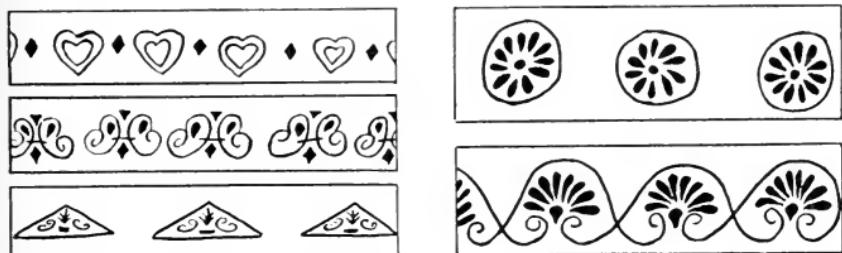


FIG. 37. SKETCHES OF GREEK DESIGNS

3. *Study of Greek Vases.* Examples of Greek vases from the museum were brought into the room, and the shapes of a few were drawn and cut out. These were colored with water color carried over the surface in a simple wash. Then the designs were drawn upon this. This work made the children familiar with the shape of the vases and with the style and distribution of the ornaments. Each child then made a page of these vase forms for his book, as an illustration of the written work. Fig. 39 shows drawings of Greek vases.

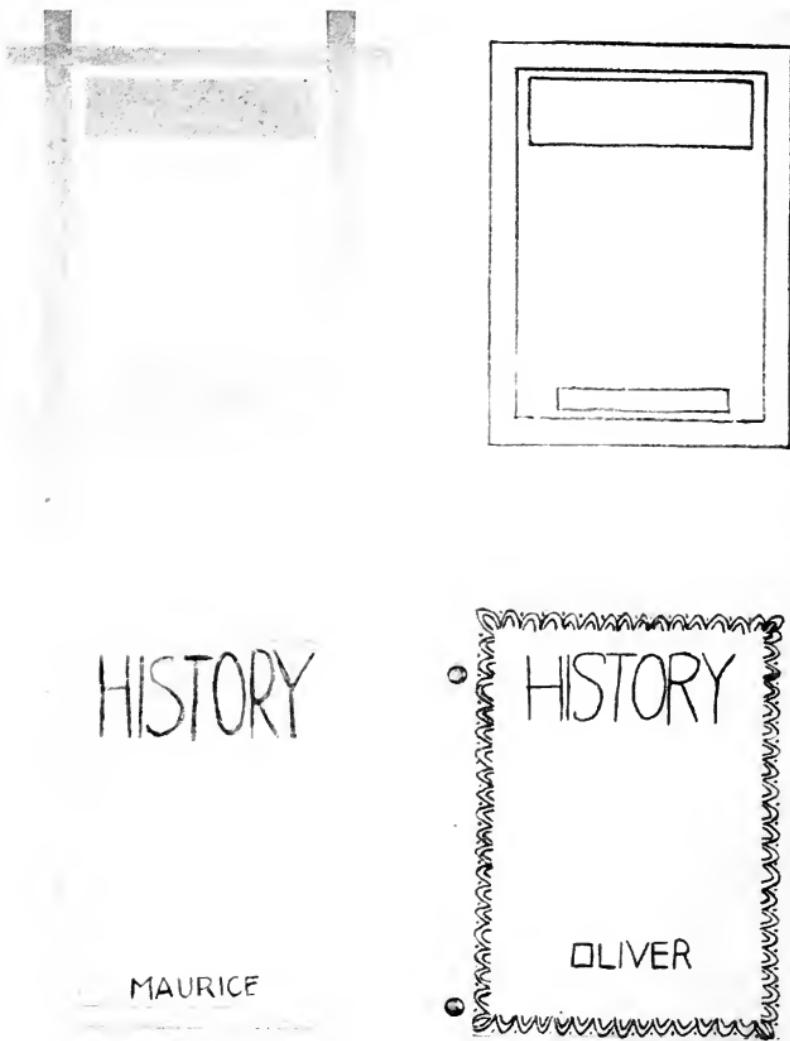


FIG. 38. STEPS IN PLANNING AND MAKING A COVER

4. *Study of Greek Buildings.* Pictures of Greek buildings were brought into the room and discussed. The children also went on a trip to the Art Institute to see a small model of the Acropolis and to note



FIG. 39. DRAWINGS OF GREEK VASES

particularly the forms of Greek columns. Their attention was also called to the architecture of the Field Museum in the vicinity, which embodied

examples of Greek design. The children made many sketches in pencil, showing the outline of the Greek buildings which they had seen, and then with black water color made a silhouette of the Acropolis, showing the Parthenon (Fig. 40). They then made in clay a model of the Acropolis and Parthenon. This work was followed by a study of Greek costumes. The

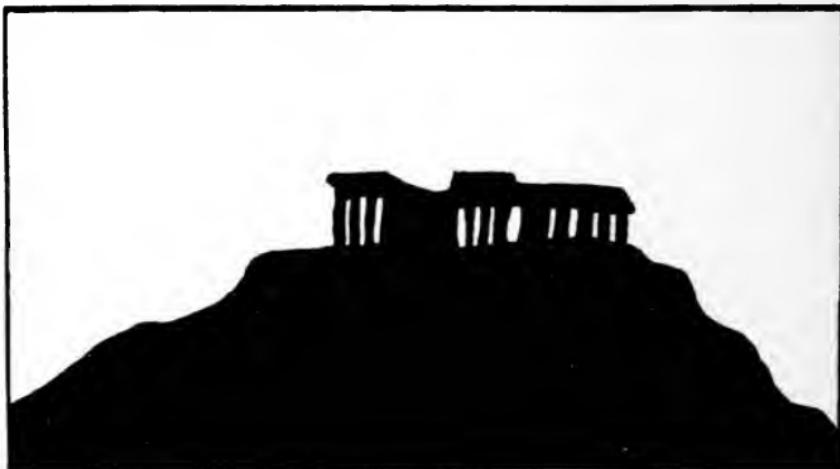


FIG. 40. SILHOUETTE OF THE PARTHENON

children collected information from the descriptions in the history and from pictures. The school is supplied with a costume box, and the children posed in Greek costume. They then drew silhouettes of figures in Greek costume. Some quick pencil sketches were made, to show figures in action. These were first made with skeleton lines and then filled out and suggestions of costume added. With this data in mind the children now made illustrations for

stories which had occurred in connection with the history. Each child chose a different story. Fig. 41 shows illustrations for "The Wooden Horse," "Atlas and Hercules," "Pegasus," "Telemachus and the Bow."

The question may be raised as to the ability of children in Grade IV to arrive at any true appreciation of Greek art. Without entering into any

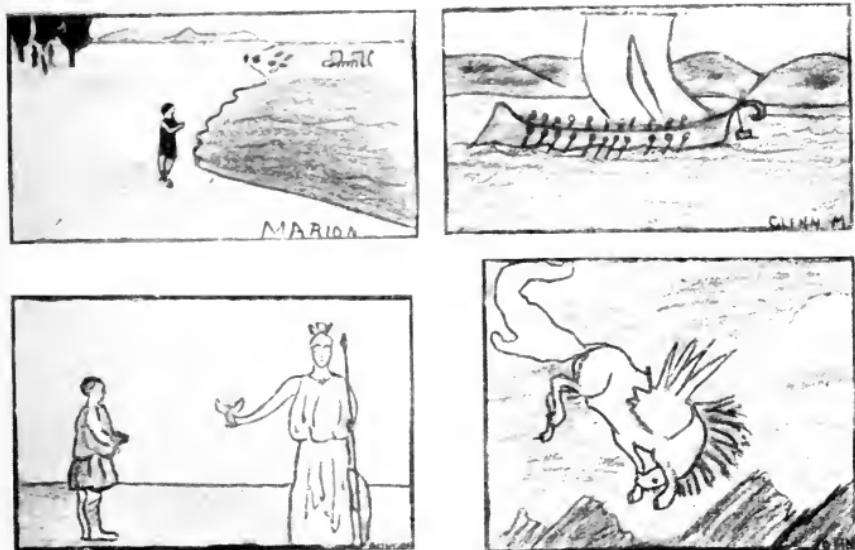


FIG. 41. ILLUSTRATIONS FOR GREEK HISTORY

discussion of this in general, the following actual results were evident. The children enjoyed finding and recognizing examples of Greek design in architecture and pottery. They became interested in Greek costume and figures. They were on the alert to discover from various sources things relating to Greek life. They thus gained a general acquaintance which could not fail to add to any later and more definite interest.

GRADE V

Roman Life

In connection with their history the children of this grade were studying stories of Roman life. This topic was therefore chosen to be used in connection with the drawing. Each child selected from among the stories of Roman history the one he wished to illustrate. As in previous topics, he made a written list of the objects which he needed to learn how to draw in order to use them in his picture. Considerable time was spent in looking up reference material in order to obtain these data, and the children made notes and sketches of the items of information which they discovered. Fig. 42 shows a page of the sort of sketches which the children made when searching the reference material for items of information. The school has, in addition to the general school library, a classified collection of several thousand pictures gathered from books, magazines, photographs, and other sources. In learning to draw any particular form, the children found in this collection abundant reference material, and an important part of their training was in the direction of leading them to see how they could secure for themselves the necessary information. For example, the child who chose to illustrate Hannibal Crossing the Alps went to the school

library and picture museums to look up the particular type of mountains needed. She then traced several sky lines, showing the silhouettes of Alpine mountain shapes, and practiced drawing these until she could represent their character. As a result of this study, her drawings of the Alps were very



FIG. 42. MEMORANDA FOR USE IN ILLUSTRATIONS

different from the ordinary symbols used by children for mountains. Some of the children had to spend a good deal of time in learning how to draw horses and oxen and elephants. When they drew people, if they were in any doubt as to the action lines which were needed to tell the story in the first trial sketch and which were later to be filled in, they posed in the positions called for and thus got

the correct expression of lines. In the course of this work it was occasionally found that certain children had already learned to draw particular things well. For example, one girl who had no special talent in drawing had been taught by her father how to draw horses. She had practiced those until she could draw a horse well in almost any position. Her ability in this one line was recognized by the other children, and when horses were needed in their sketches they were anxious that she should either help them or draw their horses for them. Consequently she taught many of the children to draw horses. This is additional evidence that ability in drawing is developed not in general but in specific lines, and that because a person can draw one thing well it does not therefore follow that he can draw everything.

After each child had worked upon the various items which he was to include in his picture until he had gained definite knowledge and enough skill to give him confidence, he produced a rapidly drawn plan of his picture which showed in a general way the composition. Some discussion of these sketches followed, in which they were compared with pictures which were examples of good composition. The next step was the final drawing of the illustration, and last of all the color was applied by means of crayons. Some of the stories chosen were

as follows: "Cincinnatus at the Plow," "The Forum," "Gladiators," "Horatius at the Bridge." Each child completed a Roman-history book in which these pictures were placed. Figs. 43 and 44 show some of these sketches. In this grade appeared the first noticeable signs of independence in investigating sources for material to be used in drawings.

GRADE VI

Pioneer Life

The history of this grade includes a study of pioneer life. This subject offers excellent opportunity for illustration. The method of presenting one topic, travel by canal boat, is here given. The illustration for this topic differed somewhat from the previous illustrative drawing, in that every member of the class introduced practically the same material into his sketch; namely, the canal boat and the canal. Many pictures of canal boats were gathered. From these, and with the help of the children's descriptions, the materials for which they had obtained from their histories, the teacher drew a canal boat on the board, making the construction as simple as possible and yet giving the essential lines upon which the different styles of canal boats might be built. Each child then practiced the canal-boat shape, making a page of sketches of several sizes and

GRADE VI—SCENES FROM ROMAN HISTORY

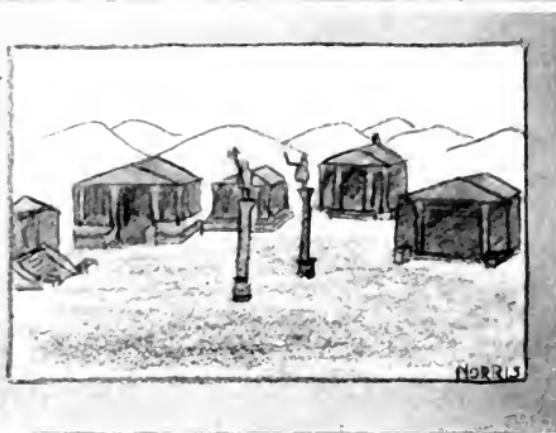
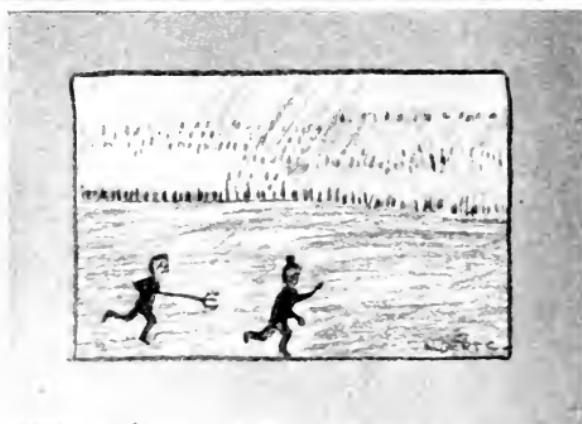


FIG. 43. SKETCHES OF GLADIATORS, THE FORUM, AND CINCINNATUS

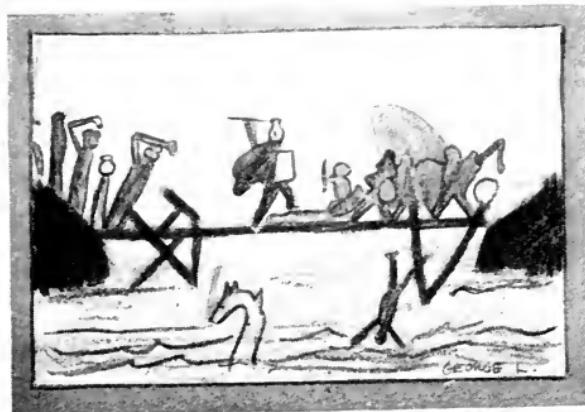


FIG. 44. HANNIBAL CROSSING THE ALPS, AND HORATIUS AT THE BRIDGE

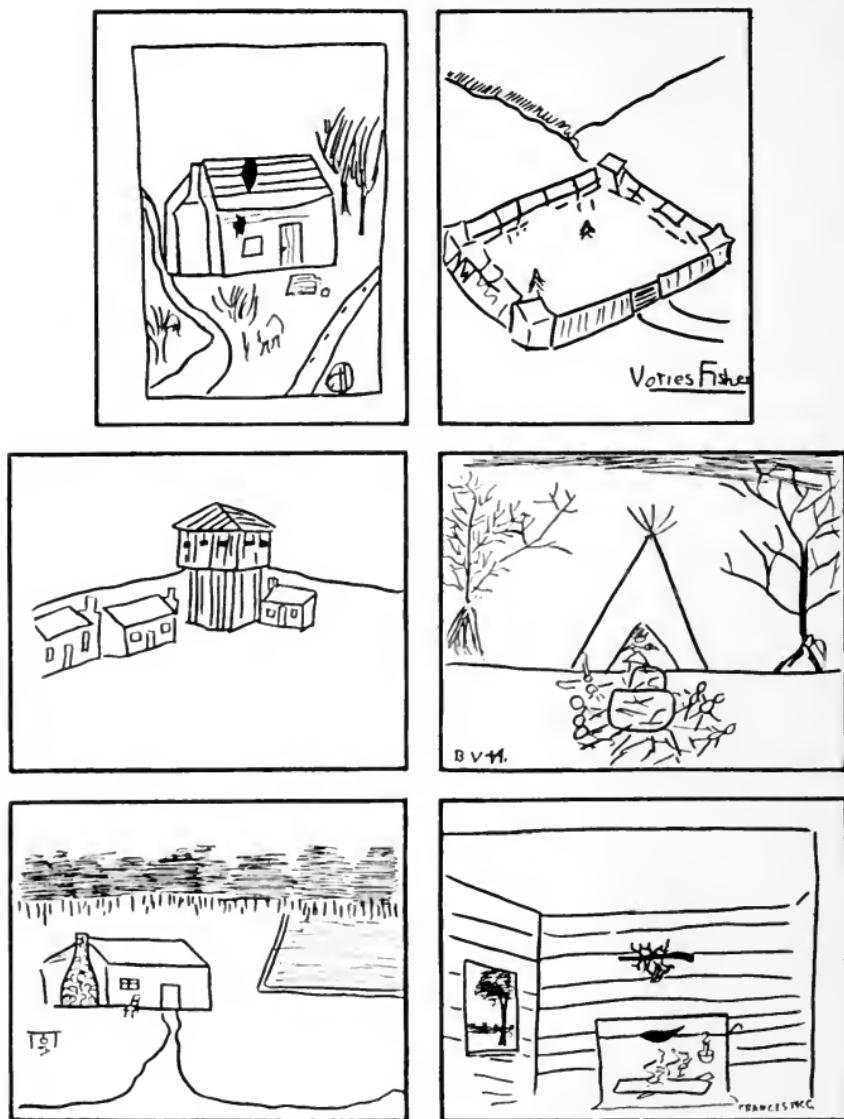


FIG. 45. FIRST SKETCHES FOR ILLUSTRATION OF PIONEER LIFE

shapes. The various possible positions of the boat was an important topic. These drawings were then placed on exhibition and discussed. From among these sketches each child chose the one which he

thought would be most interesting in a composition. He then enlarged this upon another piece of paper, improving the drawing as much as possible. After this he experimented with arrangements by inclosing his drawing of the canal boat within a rectangle of the size desired for the picture.

The other elements which he thought necessary were then added, such as trees, water, etc. Pictures involving somewhat similar effects were used for suggestions regarding good composition. The children then completed their sketches in pencil outline and added three values or tones of light and dark. Ideas for coloring were obtained from good pictures, and clear tones in water color were added to the sketches. These pictures were mounted and used as full-page illustrations in the history book.

Another illustration made for this same history topic was a scene which showed early pioneer life. The method of presentation in this instance differed somewhat from the preceding. Each child selected the phase of pioneer life he wished to illustrate. As these were all different in character, lists (of which the following are examples) were made which summed up the elements which should be contained in each picture.

A Fortified Village. Fort: blockhouse, palisade, cabins (13), trees (3 or 4), gate, man, hill, forest, horse.

Vories Fischer

A Frontier Fort. Fort: fence of logs, cabins, gates (2), blockhouse (4). Trees (2 or 4), storehouse, grass.

Katherine Eisendrath

An Early Farm Cabin. Cabin: chimney, window, door, path, forest, chair, road, green pasture, fire, a few kettles, stones, fence, sun.

Robert Harper

On the basis of these lists every child made his page of sketches in order to show how much knowledge he had of each object before it was put into the final picture. Some children had to look up pictures of log cabins from the museum collection, others spent much time practicing the drawing of trees, while others worked upon different objects. The first sketches of the composition were then made and discussed, to determine which were good, and why. After all possible improvements had been made, the sketches were completed in outline and light and dark. Three tones of color were then added, and this sketch was also used as an illustration in the history book. Fig. 45 shows preliminary sketches. Figs. 46 and 47 give final results in color.

LANDSCAPE IN CONNECTION WITH GEOGRAPHY

Landscape is a subject which forms a prominent part of the illustrative work of every grade. It occurs for the most part in connection with the illustration of themes, as will be seen if one refers to the subjects which have been chosen as topics for illustration. If

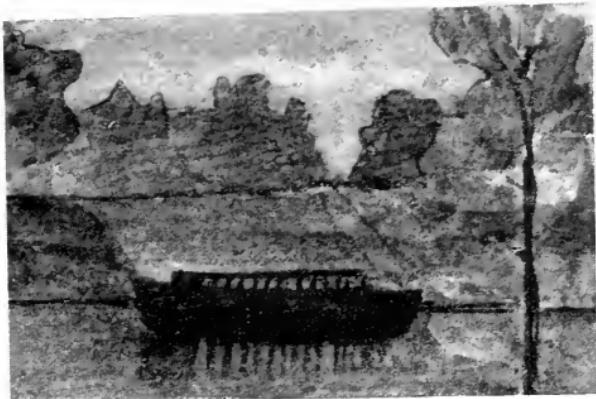
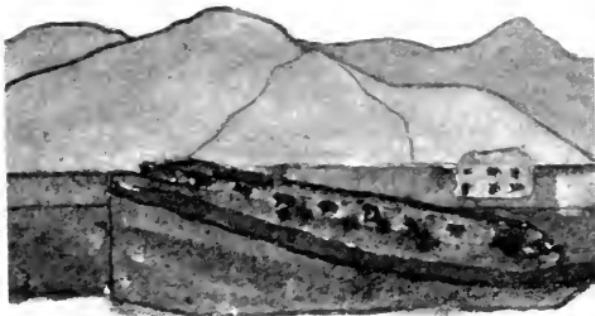


FIG. 46. ILLUSTRATIONS FOR PIONEER LIFE

one analyzes landscape drawing, he finds that a limited number of elements will produce most of the effects. For example, mountains and hills, rivers, trees, lakes, and plains are the main features. There are very few types of horizon lines. During the first years in school the children become familiar with a few examples of these types. As they grow older they learn more and more definitely the variations in character of the elements. For example, there are three kinds of mountains — the volcano, the low rolling mountain, and the jagged rocky mountain; there are three kinds of trees — the deciduous, the tropical, and the evergreen. By learning to draw these in the grades where they naturally occur in connection with the geography, it was found by the end of the seventh year that the children knew how to draw nearly every kind of geographic landscape. At the same time they were acquiring a graphic vocabulary which included animal and plant forms and constructed objects. In the first three grades the landscape work was very simple. Little was said about methods of drawing. The children gained their knowledge of form and technique chiefly by watching the teacher as she drew. There is no greater stimulus to drawing or more effective way of acquiring knowledge as to how to draw than one gets by seeing a person draw with skill and facility the things which he himself is trying to represent.



FIG. 47. FINAL DRAWINGS FOR ILLUSTRATION OF PIONEER LIFE

The only drawing materials used for the landscape work in the primary grades were pencils, paper, and colored crayons. No water colors were used until the fourth grade. The colored crayons gave sufficient opportunity for the use of color. In the intermediate and upper grades the same forms which were drawn



FIG. 48. SKETCHES IN GRADE I OF LAKE AND FOREST IN STUDY OF INDIANS

somewhat crudely in the primary grades occurred again and again, and at each stage were elaborated with much more knowledge of detail and structure, with greater accuracy, and with better technical methods. An illustration of the kind of drawing which may be used in connection with geography is given in detail in the description of a seventh-grade theme on page 84. The following outline

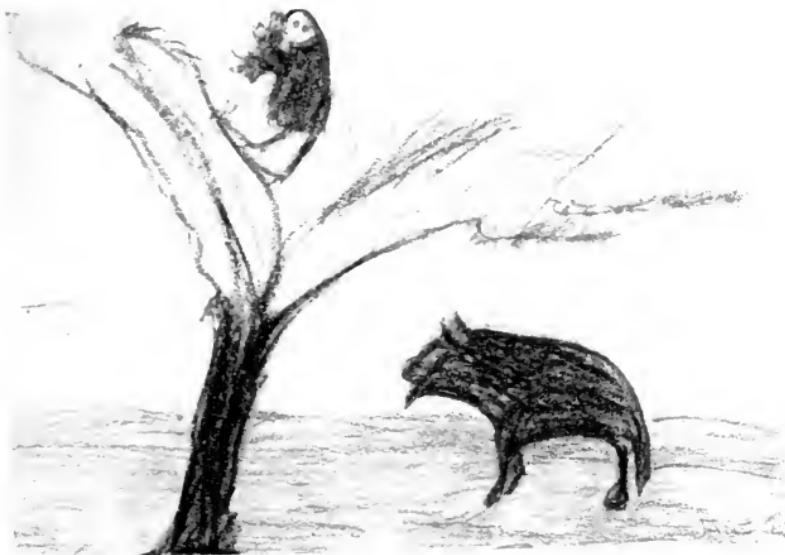


FIG. 49. ILLUSTRATION IN GRADE II FOR THE STORY OF AB

gives the more important forms which the children add to their graphic vocabulary in each grade. When viewed from the standpoint of landscape drawing, the themes already described in connection with

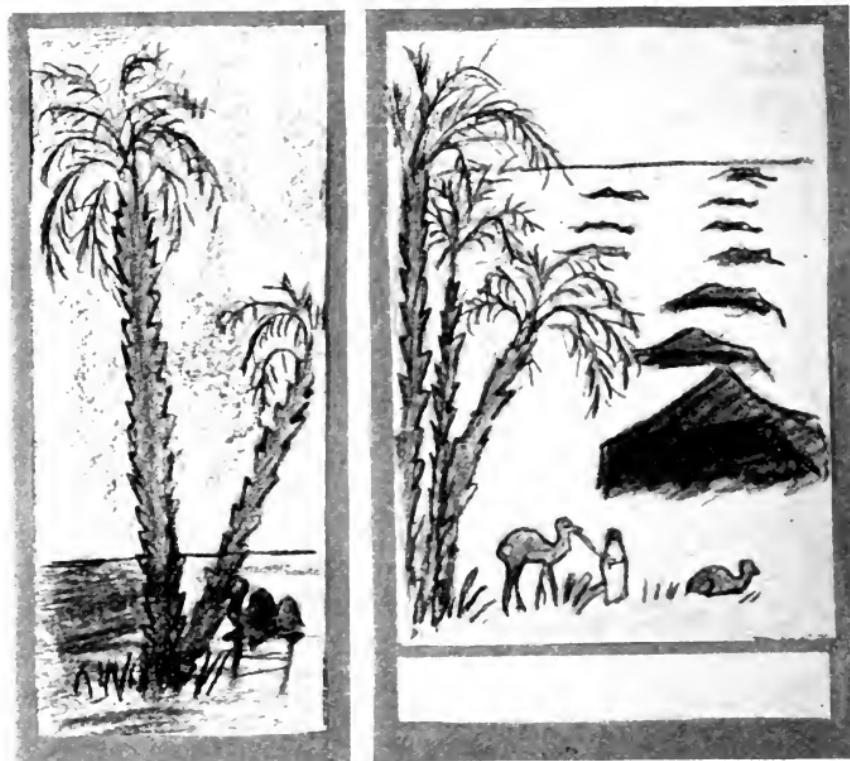


FIG. 50. SKETCHES IN GRADE III OF ARAB LIFE IN THE DESERT

geography or history are seen to contain the following distinctly landscape elements.

In Grade I, in connection with the Indian theme, the lake and deciduous forest were drawn (Fig. 48).

In Grade II, in connection with the "Story of Ab" (Fig. 49) and with the theme of shepherd life

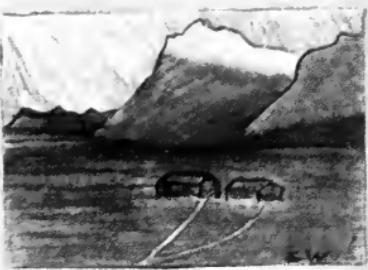
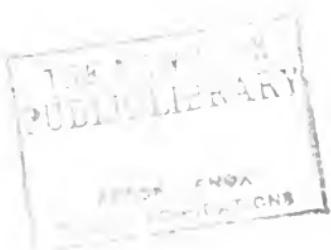


FIG. 51. SKETCHES IN GRADE III, SHOWING GEOGRAPHICAL CHARACTERISTICS OF DIFFERENT COUNTRIES



(Fig. 50), the deciduous forest occurred again, and in addition the children learned to draw the appearance of the desert, dunes, and rocky mountains, together with tropical vegetation such as palm trees, cacti, desert grass, etc.

In Grade III, under the topic "Norway," the children reviewed mountains, studying those of a somewhat different shape, and drew the glacier, the coast line, including fiords and mountainous cliffs, and added to their drawing of the deciduous forest the pine trees. In this grade children studied also Switzerland and Holland and learned to draw the characteristic sky lines of these countries. They also studied some local history, which, in the locality of Chicago, includes the coast line of the lake and the broad expanses of the prairie. (Fig. 51.)

In Grade IV the geography again included deserts, shores, cliffs, mountains, and valleys.

In Grade V these same items were studied in connection with the geography of the United States. The children now drew in more detail mountains of high and low altitude, the shapes of volcanoes, the aspects of shores and cliffs, and the trees of various latitudes (Fig. 52).

In Grade VI two of the countries studied in geography were Mexico and Japan, and here the children reviewed the same landscape elements of plains, valleys, volcanoes, shore lines, trees, etc., with more

intensive study of the characteristics of the shapes (Fig. 53) and with greater attention to details.

The work of Grade VII involved a rapid review

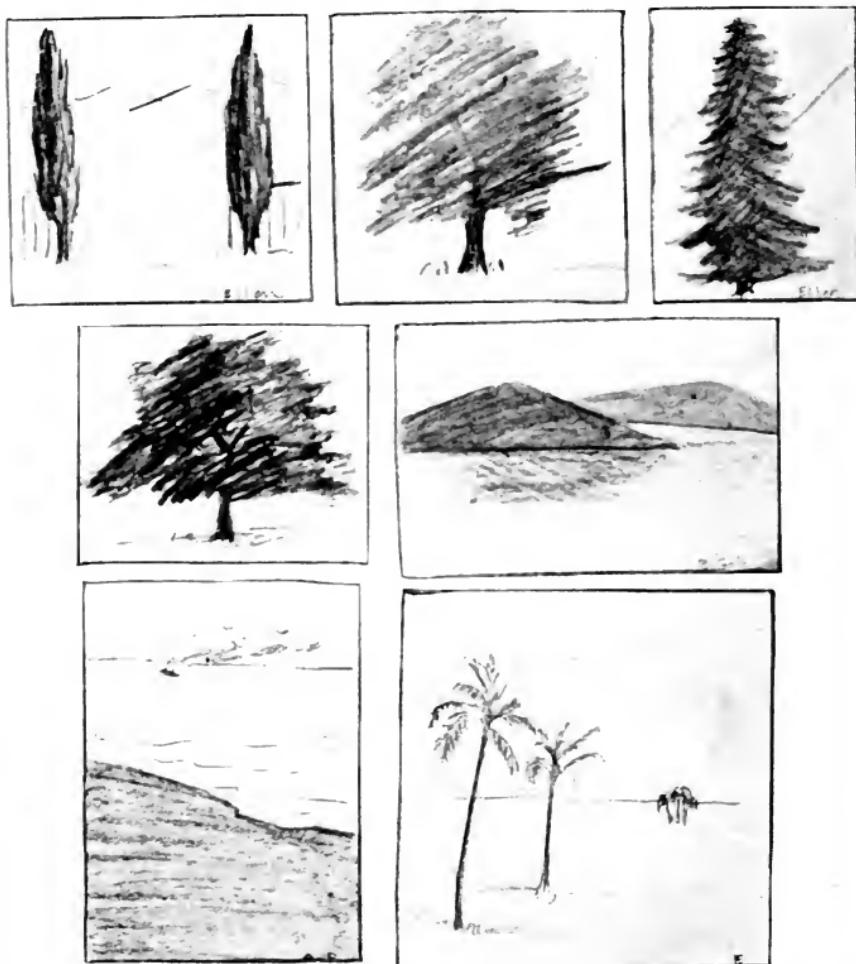


FIG. 52. SKETCHES IN GRADE V, SHOWING SHAPES OF TREES AND OF LAND FORMATIONS

of the work of previous years, and more detailed study of South America and Africa, which had already been illustrated elsewhere. The method of

presenting the drawing of this grade in connection with these two topics is here described in detail.

Instead of a single theme, all the drawing which

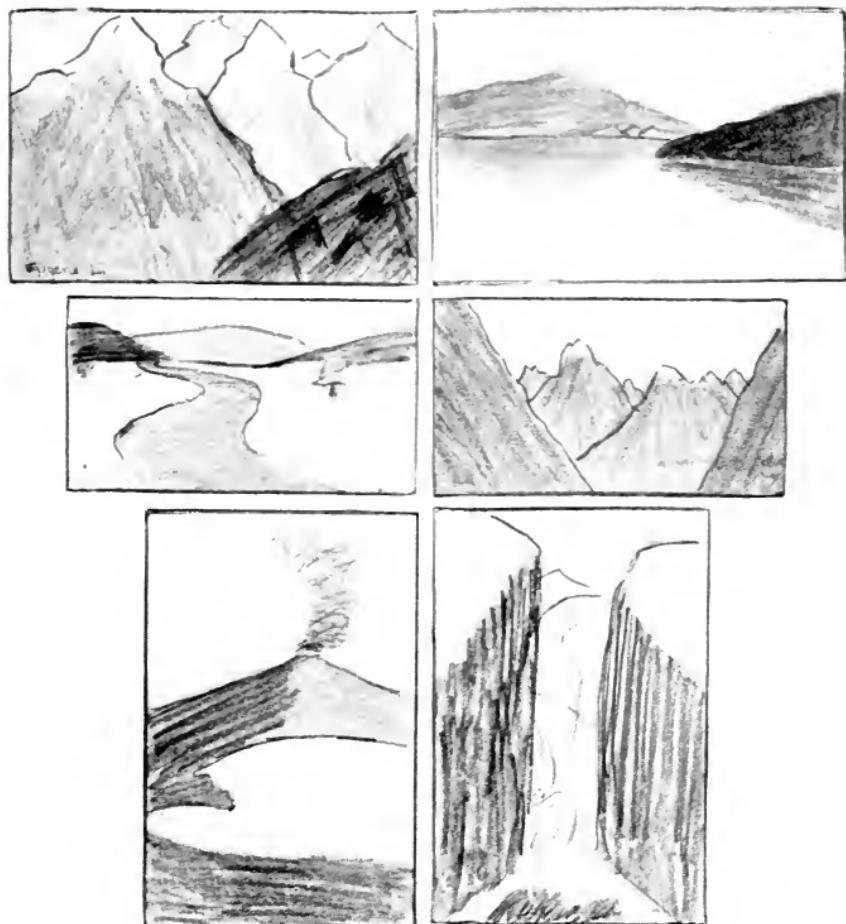


FIG. 53. SKETCHES IN GRADE VI, SHOWING DIFFERENT SHAPES OF MOUNTAINS

was taken in connection with geography in this grade is here outlined. This work included maps, plant drawing, object drawing, and design and constituted

most of the drawing for the first half of the year. It illustrates the general type of work in connection with the geography for Grades VI and VII.

1. *The Map of South America.* (a) The children studied the shape of South America in the following way: The map on the wall was divided into fourths by means of a vertical and a horizontal line, crossing in the center. It was found that the general proportion of width to height was as two to three. The children therefore drew a rectangle in these proportions and divided this into fourths as the map had been divided. They then traced in the air with their fingers the direction of the northern coast line and followed this exercise by drawing a line on paper in the rectangle. In the same way they traced in the air and then drew upon paper the eastern coast line, then the western. The details of the coast shape were not fully shown in these lines, which indicated merely the general directions. Fuller details were then observed and added. Each line was made under the guidance of well-directed questions.

(b) The children drew the map again, using the rectangle, as in the previous lesson, as an aid to general proportions and the location of prominent points. Each child now worked without guidance from the teacher. Up to this point the map was before the children when they made the drawings. The following steps were memory drawings.

(c) After this preliminary acquaintance with the shape, the children, with their eyes closed, traced in the air the shape of the map. They then drew maps free-hand on paper, without using the rectangle as guide. These drawings were then compared with the map and discussed, and a second drawing was made in the same manner. In almost every case this second drawing was better than any that preceded it and was kept for future use. It was found that every child out of a class of thirty-five could draw the shape of South America well from memory. (See Fig. 57.)

(d) Preparatory to coloring the map, the children practiced making flat washes of water color. They then studied colored maps in books and on the wall and discussed these. They concluded that these maps were for the most part inharmoniously colored. They then decided upon harmonious tones to be used. They chose soft neutral colors, because this particular map was to be used for indicating certain agricultural and industrial sections by putting other colors over the first wash.

(e) The children studied relief maps to see how different characteristics of the earth's surface were indicated. This necessitated a review of different parts of the country; for example, mountains along the western coast, plateaus in the central west, hills in eastern Brazil, long slopes in Argentina, etc.

The children practiced at the board and on paper, with charcoal, crayon, and soft pencil, in making relief maps which should show clearly the different kinds of surface they were intended to represent. When each child succeeded in making clear and understandable drawings, he completed his own map. In the end each of the thirty-five children had made a good relief map of South America. The teacher of geography was in the room throughout the discussions and took great interest in each step of the work. Questions which arose regarding geographical facts were constantly referred to her.

(f) The children next decided upon the words to be printed as titles under their maps, for example, "Relief Map of South America" and the name of the child; or "South America, by" so and so. The children then completed the printing under guidance of the following directions, which were placed on the board and discussed at each step:

1. Cut strips of paper the size and shape which you think the printing on your map should occupy.
2. On another piece of paper trace around this with pencil.
3. Within this outline, lightly space your letters.
4. Practice making all these letters on a paper until you can do them well.
5. Finish the letters which you have lightly sketched within the space.
6. Apply to your work the following test questions: Are the letters straight? Do they fill the space? Are they legible?
7. Transfer the printing to your map.

In connection with the printing on the maps, the necessity arose for a good style of alphabet. Each child traced a good alphabet in capitals and also in lower-case letters and then practised rapid printing before he completed the printing on his map. Fig. 54 shows a finished relief map.

2. *Drawing of the Coffee Plant.* The children were taken into the Field Museum to see a branch of the coffee plant. They discussed the characteristics of the plant, as, for example, the direction of the three branches that were evident in the specimen, the direction of the growth of the leaves from the stem, the opposite arrangement of the leaves on the stem. They made careful sketches as memoranda. The fact was noted that the leaves grew near where the branch joined the main stem. Further out on the branch came berries, and on the end, flowers. The colors were also noted — the greens and reds and white, etc. The children drew one part at a time, as the teacher dictated. First, all sketched lightly the direction of the stems, tracing them in the air and then on paper. Second, all worked together on the shape of the leaves, the position of the berries, flowers, etc. These drawings when finished were truthful from the botanical standpoint and were also good compositions from the standpoint of artistic arrangement. They were then mounted so as to look well on a page of gray paper which was



FIG. 54. DRAWING OF RELIEF MAP OF SOUTH AMERICA

to be placed in the book about South America. Fig. 55 shows two of these finished drawings.

The cacao plant and its parts were then worked out in somewhat the same way as the coffee plant

had been drawn, except that the drawing of the coffee plant was completed on the spot, while notes on the cacao plant were taken, and the drawing worked out from these at home. It was found that the steps followed in the drawing of the coffee plant helped the children definitely in their work with the

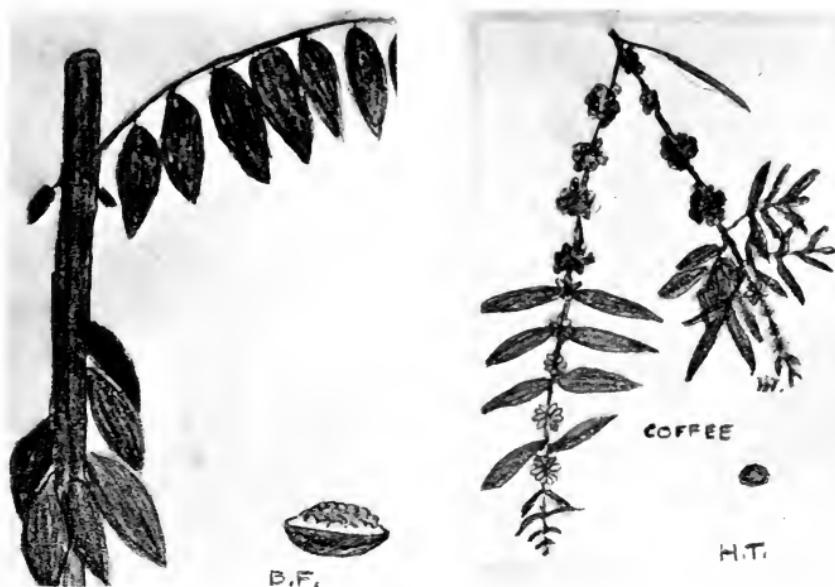


FIG. 55. DRAWINGS OF THE CACAO AND THE COFFEE PLANT

cacao plant. These also were mounted on a page for the book.

3. *Making of Book Cover.* This lesson was given partly as a test of the ability of the children to work out a problem entirely from directions written on the board. The following order of steps was placed before the children, and the instructor in drawing then left the class in charge of another teacher, so

that no questions were asked by the children during the exercises.

1. Draw a rectangle, five inches by two inches.
2. Space lightly the letters for the title "Geography," so that they will entirely fill the rectangle.
3. If this spacing is pleasing, work over the letters until the form of each is satisfactory.
4. Ask yourself these questions:
 - (a) Do the letters fill the space?
 - (b) Do they stand vertically?
 - (c) Can they be read easily?
5. If you can answer "yes" to each question, then darken the lines of the letters.
6. Make a rectangle five inches by one-half inch, and within this, space the letters for your own name in the same manner.

The style of letter used was obtained from an alphabet furnished to the children. Every one of the thirty-five sheets made during this test was good. At the next lesson, after some discussion of what constituted good arrangement, each child transferred his title and name to a rectangle of the same size and lighter in color than the book cover and mounted it on the cover. Fig. 56 shows a completed cover.

4. *Map of Africa.* The following method of teaching the map of Africa presented an approach different from that used in connection with the map of South America. It began with the detailed shape, without the help of geometric construction

lines. The children drew a map of Africa directly from the map hanging on the wall. In this first

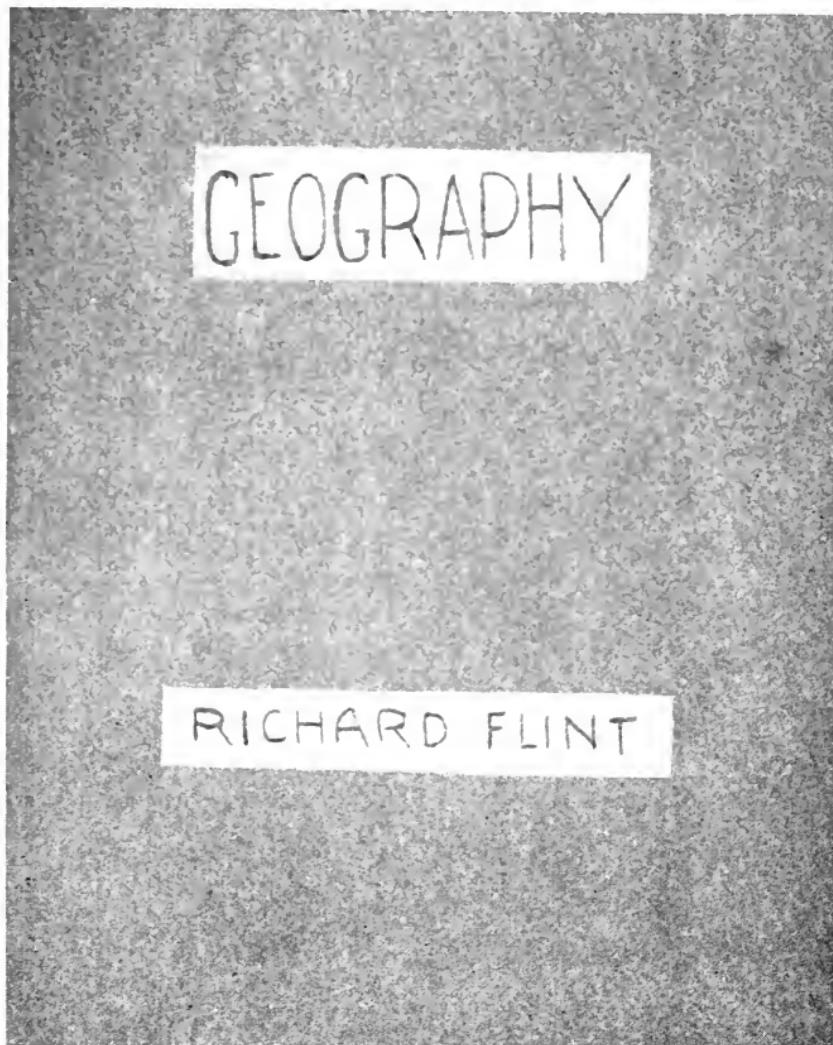


FIG. 56. COVER FOR THE BOOK OF GEOGRAPHY LESSONS

drawing no help was given by the teacher. They then cut the shape of the map out of paper from memory, as a test of their knowledge of the form.

On tracing paper they then traced a map of Africa, directly from the atlas. This drawing called their attention to details which had escaped their notice when they drew from the map in the first place and also rectified their distorted ideas of shape. In accomplishing these ends, tracing, if rightly used, is a valuable supplementary method of mastering form. Two transfers of this tracing were made, by blacking the back and placing it on another sheet of paper and then tracing over the outline. After this practice the children indicated the shape of the map in the air with their fingers. They then drew the map free-hand and followed this by a cutting of the map. These steps were carried on rapidly, and the whole series was completed in one lesson of half an hour. The purpose of this work corresponded to that of rapid drill in arithmetic.

In the next lesson the children again traced the map of Africa from the atlas, for further experience with the details of its shape. They then drew the map free-hand from memory. The following test was given: the children drew from memory on one sheet the map of Africa, which they had just studied, and on another the map of South America, which they had studied in the way already described, but which had not been drawn for over two months. There was little difference observable in the quality of the results between the maps of South America and

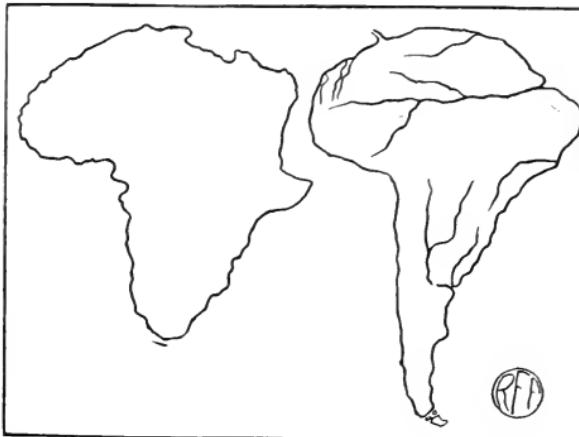
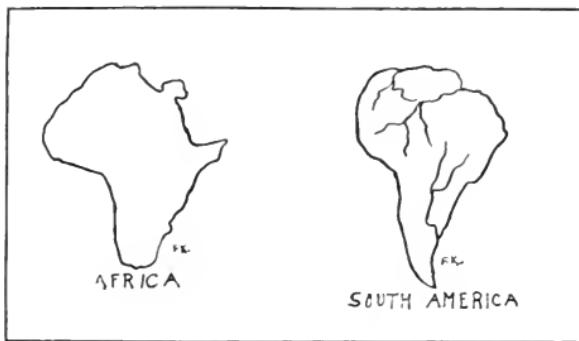
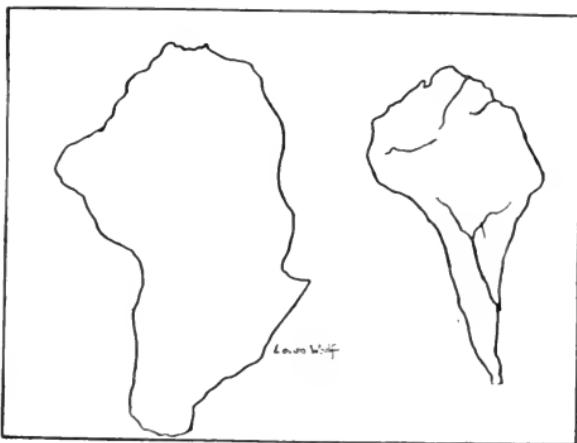


FIG. 57. MEMORY DRAWINGS OF AFRICA AND SOUTH AMERICA,
SHOWING THE WORST, THE AVERAGE, AND THE BEST OF THE CLASS

of Africa, which indicates two things: first, that any systematic series of steps so planned as to give continual increase of knowledge and to call for expression of this knowledge at each step will bring good results; second, that shapes thus learned become a relatively permanent part of the child's vocabulary. Fig. 57 shows an example of the best, the worst, and the average of each of these maps.

5. *Illustration of Central Africa.* (a) The class had been studying the jungle region of Central Africa. The instructor discussed with the children typical scenes in the tropics, including the homes of the natives, their dress and occupations, the banana and rubber industries, hunting, preparing food, etc.; implements, such as weapons and canoes; the vegetation and animals. Each child decided upon the scene he wished to picture, and made a definite written statement, telling the subject for his picture and giving a list of the objects which he had decided to put into it. These were passed in to the teacher for examination. The following are typical lists:

A House Scene. A house, natives, landscape around house, animals, small river, canoe lying by river.

Philip Ringer

I should like to draw either the natives, or animals in their lairs, and also some of the vegetation.

Charles

Natives going down the falls in canoes. Falls, natives, canoes, jungles with grass all around.

John Wild

Native hut, palm trees, a few natives standing around, cattle near by, maybe. In Usoga.

Elizabeth B.

(b) The next lesson opened with a discussion of statements handed in at the last lesson. The children made a page of quick sketches of the things which they would put into their pictures. These were crudely done, because of lack of knowledge, but the children used them as suggestions of the points on which they needed further information. They then went to the library to look up descriptions of points regarding which they were ignorant, and they also searched photographs and book illustrations for data with which to elaborate their sketches. They made careful studies of the shapes and characteristics of the objects which they planned to use in their sketches. The discussion, preliminary sketches, and study of reference material occupied two lessons.

(c) In the next lesson they discussed some of the essential principles of composition; for example, the shape of the rectangle which would be best for their picture. They noted the effect of pictures of different proportions and decided which seemed most pleasing. They then made the general division of sky and land, giving reasons why their picture would look better with more sky than land or with more land than sky. They examined pictures to

see how the artist directed attention to what was of greatest importance or interest in the picture. They found that sometimes this was done by emphasizing the size of the object, again by its color, and still again by its placing or by making the prominent lines of the picture tend toward it. They then chose the place for that object which was to be of the greatest interest in their own pictures and experimented with means of emphasizing it. They divided the areas of their pictures into three groups, the large, the medium, and the small, and worked out the details of these areas and masses in order to make their character clearly understood.

(d) At the next lesson the work of the previous lesson was reviewed orally. The children worked out rapidly with pencil a plan for their pictures, embodying the suggestions of the discussion. These were considered from the point of view of good proportion and arrangement, after which corrections were made.

(e) In the next lesson the effect of beautiful lines was discussed. Good examples were shown. The children worked over their sketches in order to give to the lines some rhythmic arrangement. They discussed the main values, or tones of light and dark; that should come into the sketches, referring to pictures which showed the effect of values. After this the sketches were worked over and the values

introduced. Each child was limited to three tones of light and dark in his sketch.

In connection with these individual sketches a composite drawing was made upon the board. One child outlined a good-sized rectangle of pleasing proportions. Another child, who had made the best

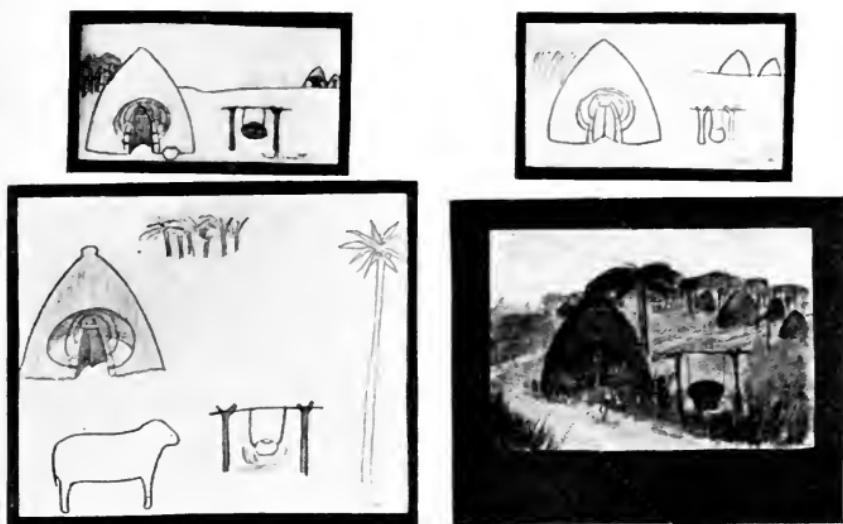


FIG. 58. PRELIMINARY STUDIES AND FINAL DRAWING TO
ILLUSTRATE CENTRAL AFRICA

studies of African huts, sketched in examples of these. Others, who had been especially successful along some other particular line, added the items which they had learned, such as men, trees, implements, etc., until the picture was completed. The children discussed this at each step, and if any child thought he could make a better drawing of a particular item than the one shown on the board, and

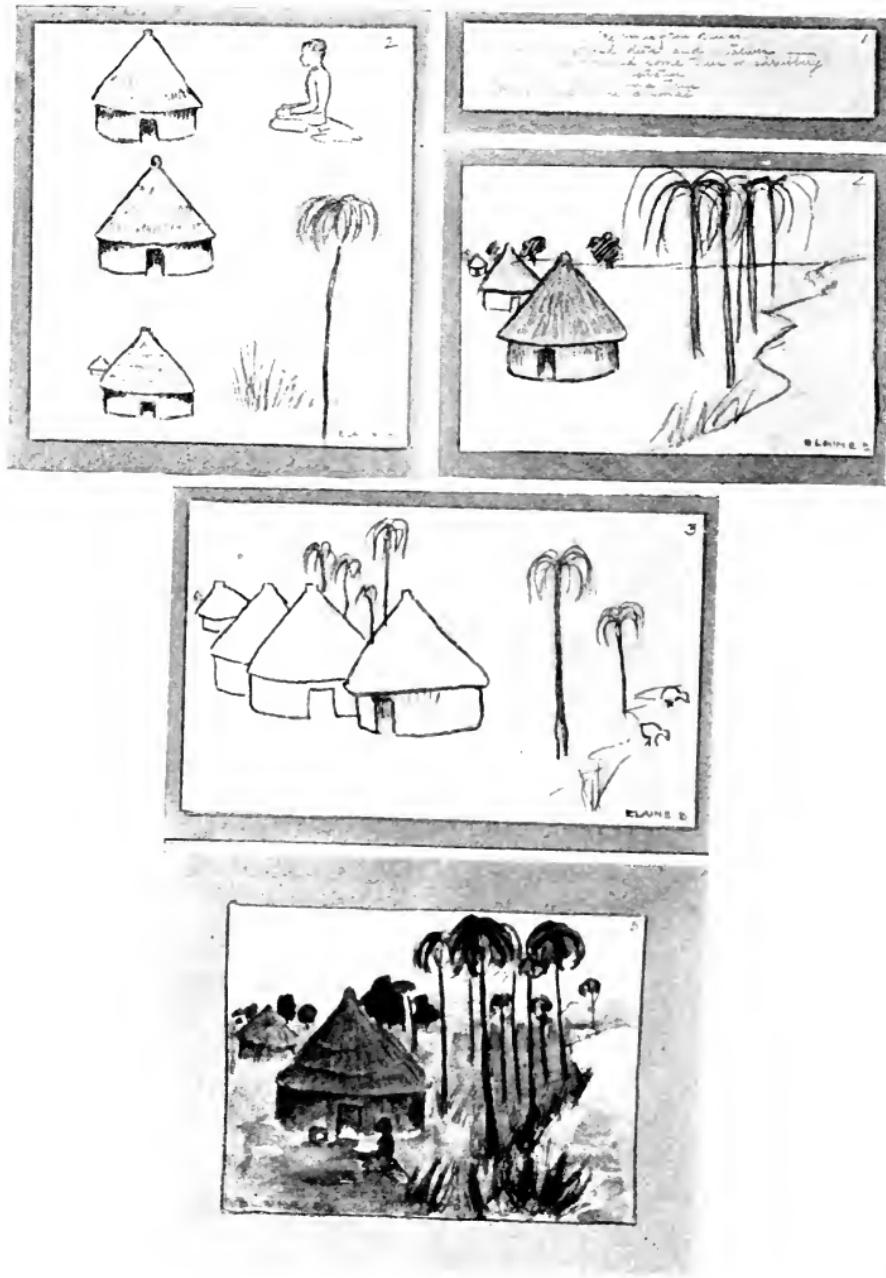


FIG. 59. PRELIMINARY STUDIES AND FINAL DRAWING TO ILLUSTRATE CENTRAL AFRICA

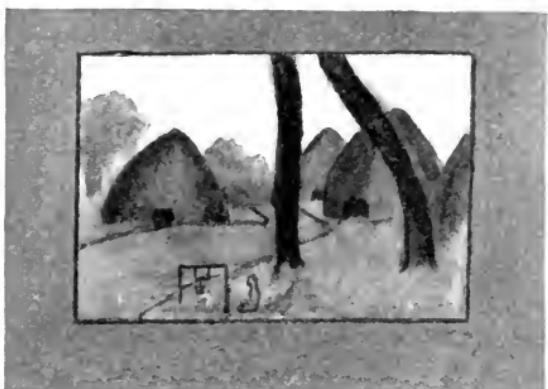


FIG. 60. OTHER ILLUSTRATIONS FOR CENTRAL AFRICA

could justify his confidence by a sketch on paper, he was allowed to replace the drawing on the board by his own. Thus the picture developed to as great a degree of excellence as the children could carry it. This experimentation on the board was a very definite help and stimulation to the individual drawings.



FIG. 61. GROUP OF ILLUSTRATIONS FOR CENTRAL AFRICA

After the sketches were completed in pencil with the three values of light and dark, each child worked out some pleasing color scheme, getting suggestions from colored prints. The tones were put on flat in water color over the drawing. These pictures were then mounted and placed as colored illustrations in the geography book. Figs. 58 and 59 show the work

of two children, and Fig. 60 shows the final sketches of other children. These represent the average attainment of the class, as will be seen by comparing Fig. 61, which gives the final sketches of other members of the class. The following written test was given at the close of the work, and twenty minutes was allowed for the answers.

1. What steps would you take in making an illustration for your geography or your history work?
2. What questions would you ask in criticizing such an illustration?
3. Which of these compositions, No. 1 or No. 2, do you like better? [Two compositions were placed before the children for their judgment.] Why?
4. Make a quick sketch, to show how you would improve the poorer one.

THE ILLUSTRATION OF LITERATURE

The examples here given of the use of drawing in connection with literature are selected from Grades I and VII. This offers a comparison between the work of the first and of the last year in the elementary school.

GRADE I

Fifteen of the poems of Christina Rossetti were chosen for the first grade to memorize as a part of the literature study. These were printed on the school press by the seventh-grade printing class, so that each child could have his own copies of the

poems. In order to keep them in permanent form, the children suggested that they make a book out of them, designing a cover and illustrating certain of the poems.

The first poem selected for illustration was "Mix a Pancake." During the literature period the grade teacher let each child make a picture on the board which would tell the story of the poem as he imagined it. These were not erased, but kept until the special art teacher came for her lesson. She led the children to criticize each of the drawings, first from the standpoint of what was good in the picture. In this criticism the following questions were frequently asked, "What do you like best about it?" "Why?" Then followed the question, "What would you do to this picture to make it better?" Each child corrected his picture as nearly as he could according to the suggestions given. He was then ready to make his drawing on paper of the right size for his book. When these drawings were nearly finished, the children, one at a time, brought them to the front of the room for criticism. As each picture was shown, the question was asked of the class, "What is the one thing he can do now to help this drawing?" This specific question brought ready responses from the children, and they offered their suggestions freely. Much better results were obtained through this sort of constructive class criticism than in any other way.

Mix a pancake,
flip a pancake.
Plop it in the pan;
try a pancake,
Taste a pancake.
Catch it if you can.



Rainbow in a western place,
An arch like a rainbow.
A smiling sun like
One when pale blossoms used to bring
Ripe fruit to follow.



XII

Be a sailor, my son,
And go where'er the seas
Bring us; we'll have some fun,
As far as we can run.
There's no danger on the seas
As far as we can see;
But a storm may bring a scare,
And we'll stop the trees
And leave a trail from earth to sea
In spite of the waves.



FIG. 62. ILLUSTRATIONS FOR POEMS OF CHRISTINA ROSSETTI

As in all of the illustrations of this grade, pencil and colored crayons were used, and each drawing when finished was mounted on a page for the book (Fig. 62).

The second poem chosen for illustration was "If a Pig wore a Wig." The grade teacher, in the same manner as before, worked out the preliminary sketch before the art teacher's lesson occurred, but in this case there was great trouble in making the drawings, for no child knew how to draw a pig. When the pictures were criticized, each one was evidently unsatisfactory. The children said, "That does not look like a pig." Consequently it was found necessary to devote some supplementary practice to the drawing of pigs.

For the sake of making the children's progress more evident, each drawing described in the following steps was kept for final comparison. They were first asked to draw a pig as they thought it looked (*B*, in Fig. 63). A hectographed drawing of a pig (*A*) was then placed before each child, and he was asked to copy this. These drawings (*C*) were better, but still hardly recognizable. As a third step the children were asked to trace the hectographed outline several times. After each practice in tracing (*D*), which was done on thin paper so that the shape could be reversed, the children were ready again to make a free drawing. A comparison of *E* with *C*, the copy made by the same child from the hectographed outline, shows that tracing may contribute to the knowledge

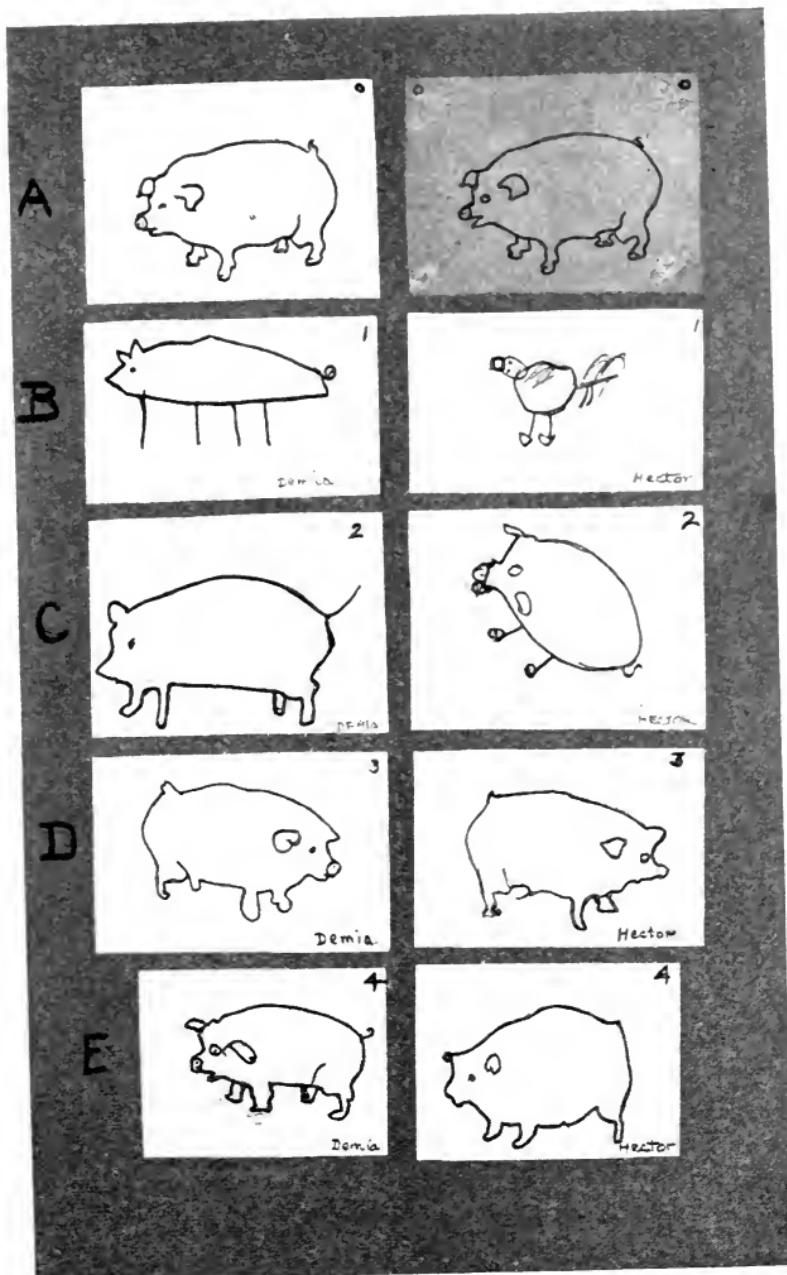


FIG. 63. STUDY OF A PIG

B, C, D, and E are successive drawings by two children

of the form something which is not gained by copying. Attention is directed to details which before had escaped the eye.

As a test of whether the children in this class had really learned the shape of the pig and could adapt it to any position, they were asked to make quick sketches which would show pigs in a barnyard, as the children remembered them when they had seen

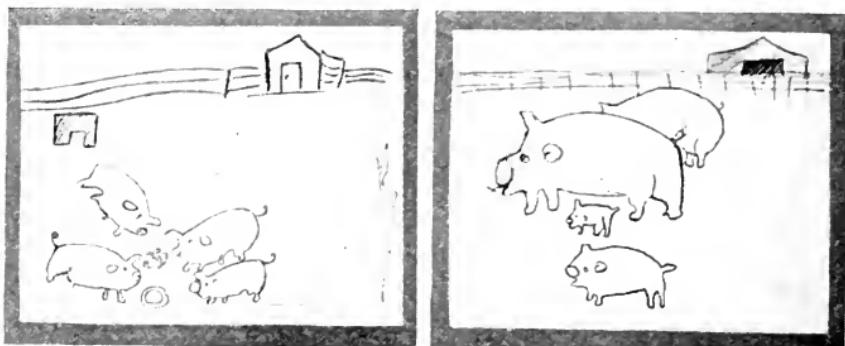


FIG. 64. ILLUSTRATION MADE AFTER THE CHILDREN HAD STUDIED
THE SHAPE OF A PIG

them in the country (Fig. 64). After this they were ready to proceed with their drawings for the poem. They could now draw pigs which were easily recognizable. When a high standard of attainment in illustrative drawing is reached only by a very few in the class, it is probably because there is little systematic study of the shapes which are to be used. The drawing stops with the first exercises. The teacher often exhibits only the two or three sketches made by the talented children and allows the others

GRADE I—ILLUSTRATIONS FOR A BOOK OF POEMS

POEMS



MARGARET HITT
GRADE I
U.E.S.

Illustrations by Margaret Hitt
A. D. Lillard, Grade I
U. E. S., 1932
Copyright 1932 by the Board of Education



If all were well and nothing
But we could we say?
There was a gentleman
And he said "Good day"
If we could do but
What could we do
Send him to the doctor
To get him well.



If all were well and nothing
But how could you the tell?
If all were well and never more
There'd be no such thing as ill.



FIG. 65. PAGES FROM BOOKS OF ILLUSTRATIONS BY CHILDREN

to pass, because she regards them as the best that children without special talent can do. Systematic study, on the other hand, is not content with accepting the child's idea as it stands, but develops both the idea and its expression so that each attains some degree of excellence. These illustrations show that development is possible for the majority of the class. In somewhat the same manner seven or eight poems were illustrated. The children took time to practice on the forms that were needed by the class as a whole, such as ships, wind-blown trees, hills, etc. Simple principles of composition which were continually needed were discussed, and good examples were kept constantly before the class.

The making of the cover, the mounting of the poems and illustrations, and the working out of decorative units for pages having no illustrations presented many problems in design. Fig. 65 shows pages from these books of poems.

GRADE VII

An important unit of work in the English of the seventh grade was centered around the topic of life saving. The children gathered data for this study from stories, pictures, poems, and experiences, and to this they added original poems and stories. The greater part of the English book which each child made in Grade VII was occupied with this theme.

The drawing therefore found in this, as in other topics, an interest already awakened and material which was full of pictorial suggestion. Among the material for illustration which readily suggested itself were such details as lighthouses, life boats, life savers, effects of the ocean, and scenes which were suggested by written work of the children. The children made collections of pictures relating to these topics from every source possible.

The order of steps followed in working up an illustration is here given. The poem which was chosen as being especially suggestive of pictorial material was "The Coast Guards," by E. Miller. The children were already familiar with this poem through their study of English, and therefore it was unnecessary to make a careful study of its meaning for the sake of drawing. The teacher read it aloud once, in order to bring the images again clearly to mind. When this had been done, each child wrote on a piece of paper a list of the pictures which the poem called up in his mind. Each child then made a page of quick sketches to show roughly some of the scenes recorded on his list. These sketches showed again the value of listing in written form the elements which should be included in the drawing. Then followed a class discussion which resulted in selecting from each page one sketch of the many which the children had made — the sketch which seemed to

possess the most pictorial possibilities. To reënforce these, pictures were brought in which showed various scenes of storms, coast guards, life savers, boats, etc. The teacher's collection was supplemented by contributions which the children looked up and brought in. The class studied illustrations to see which brought out most clearly the essential points of the story it illustrated and what means the artist had found most useful in emphasizing the points which he wished to make important. This necessitated some considerations of good composition. They then examined their own pictures in the light of the following questions:

What is of greatest interest or importance in your picture?

How can you make it appear as of most importance?

Will you emphasize it by size, or color, or position, etc.?

What will determine your proportions of sky, and of water or land?

What details will you introduce?

This discussion led each child to construct his picture in his imagination with the greatest clearness. After this the children were prepared to experiment by making many sketches which should show different arrangements and possibilities of the picture which each had chosen. They discussed what things in their drawing they needed to understand better in order to picture them effectively. They then gathered data for each object about which they



FIG. 66. ILLUSTRATIONS COMPLETED IN WATER-COLOR FOR THE THEME "LIFE SAVING"

needed more information (such as lighthouses, life boats, waves, etc.) and made careful studies, sketched from available data, of each object which entered into the illustration. On the basis of this preparation in composition and in study of details, the final result was worked out. The children carried these sketches farther by putting three values of gray in lead pencil over the outline sketches. These values of gray suggested where the flat tones of color could be applied with best effect.

Experiments with one or two different color schemes were tried before the final one was chosen. The completing step was the addition of the selected color scheme to the drawing. The tones of color were put on over the pencil drawing. These illustrations were then placed on exhibition, discussed by the class, and, so far as was practicable, corrected in the light of any valuable suggestions that were offered. Each was then mounted on a page which was to be placed in the English book. This unit of work covered about eight half-hour lessons. Fig. 66 shows a few of the average results. One significant outcome of this systematic and progressive work was evident in the cases of children who possessed none of what is commonly termed "artistic talent." The children with so-called talent produced work far beyond the average in their first sketches, but those who realized the necessity for study were encouraged

by the presentation, step by step, of single items which they could master and add to their resources. In the end, children who appeared to have no special ability often secured results which ranked with the best, both in accurate description and in artistic composition. Their interest in using their new acquirements, together with the discovery that they could do something which they had supposed was outside the range of their abilities, gave a stimulus to their work which frequently more than compensated for any lack of natural facility in drawing.

CHAPTER II

THE DRAWING OF BIRDS, PLANTS, AND THE HUMAN FIGURE

THE DRAWING OF BIRDS

GRADES I-III¹

The detailed steps described under this topic are chiefly those followed in Grade I and are typical of the way in which any animal form was studied.

There is serious doubt in the minds of many educators as to the wisdom of employing in the teaching of drawing during these early years a series of steps so definitely directed by the instructor and apparently so mechanical in nature. One meets the following questions :

1. Is the free expression of the children checked, and does their illustrative drawing tend to become mechanical, when they are taught the general shape of a few objects by detailed and closely directed steps?

2. Does the knowledge gained by this sort of study show in the free sketching, or, when left to themselves, will the children go back to their crude symbols?

¹ Parts of this topic are reprinted from the *School Arts Magazine* for December, 1913, by courtesy of the School Arts Publishing Co.

3. When children have studied a given form in detail, for example, a bird, are they satisfied to repeat it just as they acquired it, or does it prove a starting point for learning to draw a variety of effects? That is, does one position well learned help the children to draw the same thing in different positions? Does it also help them to understand and draw better what they see in nature?

From the following presentation of actual classroom facts, some conclusions may be drawn which will contribute toward an answer to the foregoing questions. It is taken for granted that the illustrative sketching continues to be spontaneous during these first years. Consequently this description does not deal so much with the free pictorial story-telling as with those lessons which are planned to supplement the illustrative sketching.

The children throughout the primary grades devote much time to the study of birds in connection with their natural history. This subject of birds is therefore taken as an illustration.

In the first year only a few of the typical birds in the vicinity are chosen for observation and study in a simple way. In the second grade the children learn to recognize more birds and are capable of going into the question of their habits with much more detail. During the third year the subject becomes more complex and involves the making of charts which show

the individual observations of the children. Thus there is a definite progression in this phase of natural history throughout the grades.

In exactly the same manner there is a definite progress from year to year in the drawing. The series of steps by which it was presented is as follows: The first-grade children were familiar with the sparrow; they had observed it in connection with their natural history and were now ready to learn to draw it. Little children, if left to themselves, draw out of their heads. The crude concepts which they already have must be developed into more adequate ones, and this can be done only by a knowledge of the actual construction of objects. For this reason a hectographed drawing of a sparrow (Fig. 67, *A*) was given to each child, and with this a piece of tracing paper. The children first traced the bird on one side of the tracing paper, using black crayola or a soft pencil (Fig. 67, *B*); then on the other side they traced over this first outline, thus producing the form in reversed position (Fig. 67, *C*). With this tracing three or four birds were drawn, some facing one way, some another. Thus the children were led to follow a good outline two or three times with actual pencil point and muscular movements.

As soon as the majority of the class seemed to be making the tracings with freedom, the children were allowed to cut out one of them. This was used as a

pattern by means of which several others were cut. This bird was placed in a specified position on the paper, and the children cut around it (Fig. 67, *D*). The next step was the free-hand cutting of the shape of a sparrow, following as well as could be remembered the cuts made when the pattern was used (Fig. 67, *E*). By this time the class as a whole had some idea as to the general lines upon which a bird was built, but the children were as yet unable, simply by looking at the natural form, to represent the characteristic lines of a sparrow. In order that each child might be able to do this, attention was called to the slant of the sparrow's back. This was seen from the hectographed copy and the stuffed specimen. The children practiced showing the slant by a movement of their hands in the air. The teacher and several children then made it upon the board. After this every child drew it with one stroke upon a piece of paper (Fig. 67, *F*). This furnished a place for beginning, an expressive structural line on which the other lines of the bird form might be built and with which they might be compared.

Next the head and bill of the bird were studied. In the same way these were drawn in the air as the teacher drew them on the board. Then on a second piece of paper the line for the back was again drawn, and this time the head and bill were added, thus giving another step in the process of

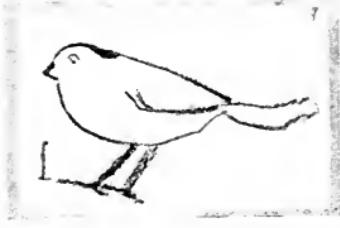
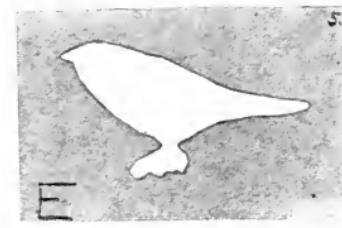
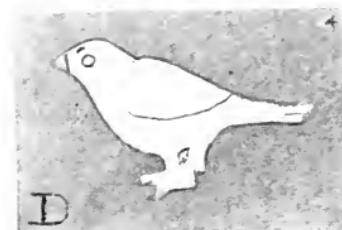
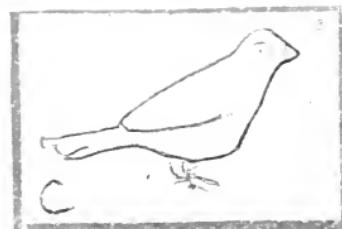
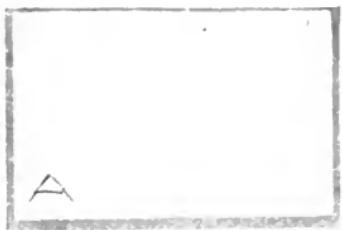


FIG. 67. SUCCESSIVE STEPS IN LEARNING TO DRAW A SPARROW

form building (Fig. 67, *G*). Upon the third piece of paper the back, head, and bill were readily drawn, and the line under the breast of the bird was added after practice in drawing it in the air and on the blackboard (Fig. 67, *H*). Then a whole bird with tail and legs was drawn upon a fourth sheet (Fig. 67, *I*). Children have a great tendency to make the legs of a bird vertical. This was partially overcome by having them place their pencils so that they pointed in the direction of the slant of the legs.

By the time this series of definite steps was over, there was not a child out of a class of thirty who could not draw a sparrow which was easily recognizable as such. In order to illustrate more fully the results which these steps produced, Fig. 68 is given, which shows the average drawings of a sparrow done with absolute freedom before this series of lessons was begun. It is interesting to compare these with Fig. 67, *I*.

Following this study of the sparrow, the shape of the crow was learned in much the same manner. It is of great interest to note what points the drawing of the sparrow had supplied as a foundation that did not have to be retaught in connection with this new topic and which helped to interpret the form of the crow. They were the slant of the back, the head and bill, the line under the breast, and the legs and tail. The slant of the back was compared with that

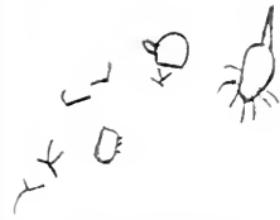
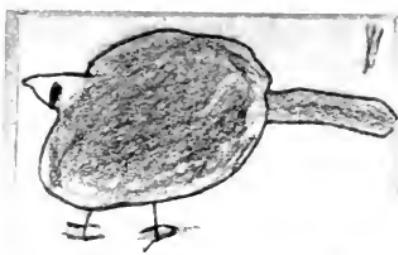
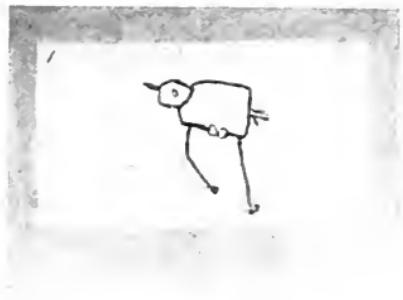


FIG. 68. AVERAGE DRAWINGS OF A SPARROW, MADE BEFORE ANY INSTRUCTION

of the sparrow and after being drawn in the air was put upon paper. Then, in the succession already noted in studying the sparrow, the other lines of the crow

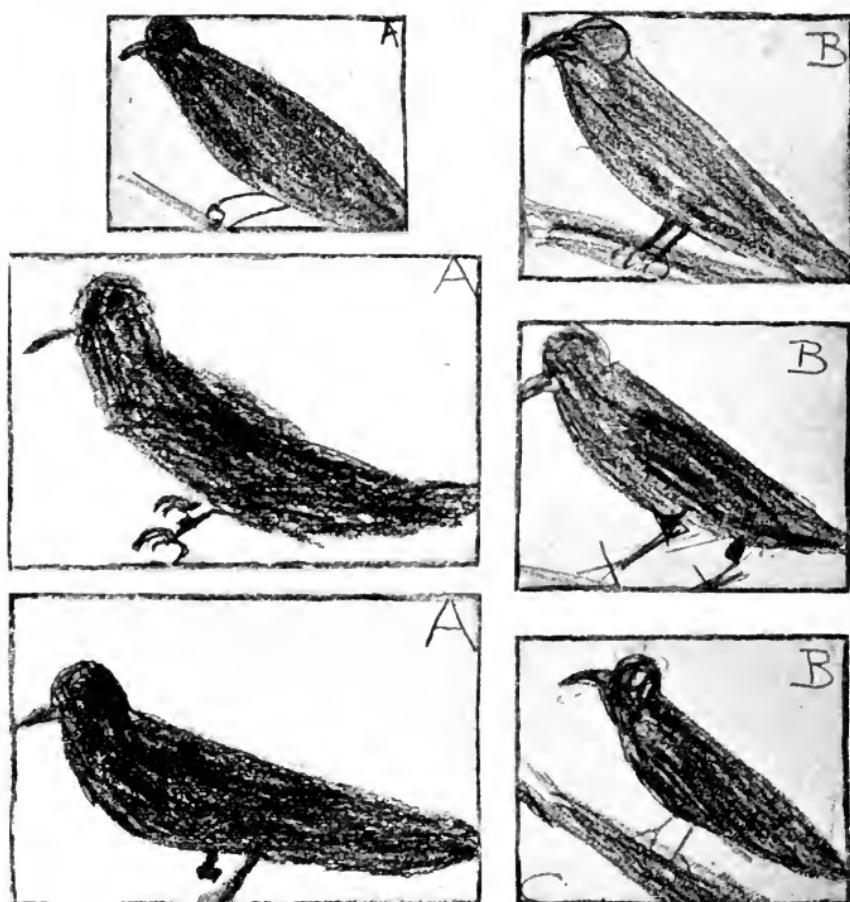


FIG. 69. DRAWINGS OF A CROW

A, from the object ; *B* shows three from memory

were drawn. Fig. 69, *A*, shows three drawings of a crow from the object, and *B* shows three from memory, after these steps.

Much less time was needed for the next subject, which was the blue jay, because the same series of steps was followed. Thus satisfactory results came more quickly. Some practice was needed upon the head and bill of this special bird (Fig. 70).

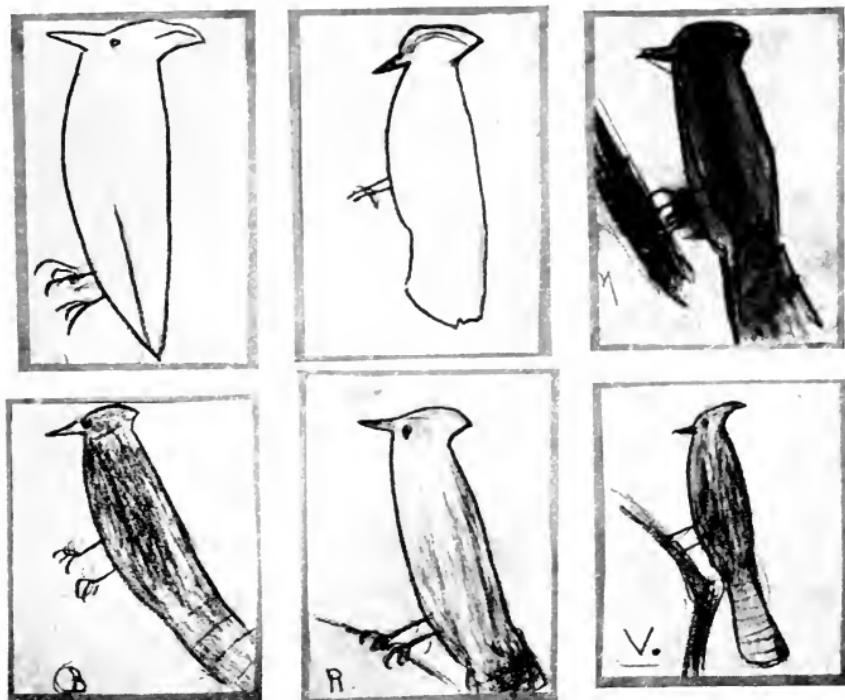


FIG. 70. DRAWINGS OF A BLUE JAY

These three birds were taught in three weeks, a twenty-minute period being given daily to this study. The work on the sparrow took about half of this time.

Other kinds of drawing were given for several days, then the children were asked to draw blue

jays again, with no help from the teacher. A wood-pecker was then shown, and with very little questioning on the part of the teacher the class drew it. The results are shown in Fig. 71.

One test of a method is to see whether its effects are permanent, and whether the children follow the same method of procedure and obtain as good results after intervals of time in which they are doing other kinds of work. For several weeks the subject of birds did not occur in the art work. Then, at intervals, the children reviewed the different birds they had learned, and the robin and duck were added to the list. There were only two or three children who did not of their own accord follow the method they had learned in drawing birds. Fig. 72 shows memory drawings of these birds.

There had been some question as to whether the class would not lose interest through having to do the same thing again and again. Experience proved that the interest increased each time the bird was drawn from a different standpoint or whenever a different bird was taken. The children enjoyed applying the knowledge and skill they had already gained to the new problem, which varied sufficiently from what went before to require some new interpretation and yet made use of all that had been learned.

It was the purpose of the instructor that each year should bring an increase of definite and usable

GRADE I
FINAL SKETCHES OF THE WOODPECKER

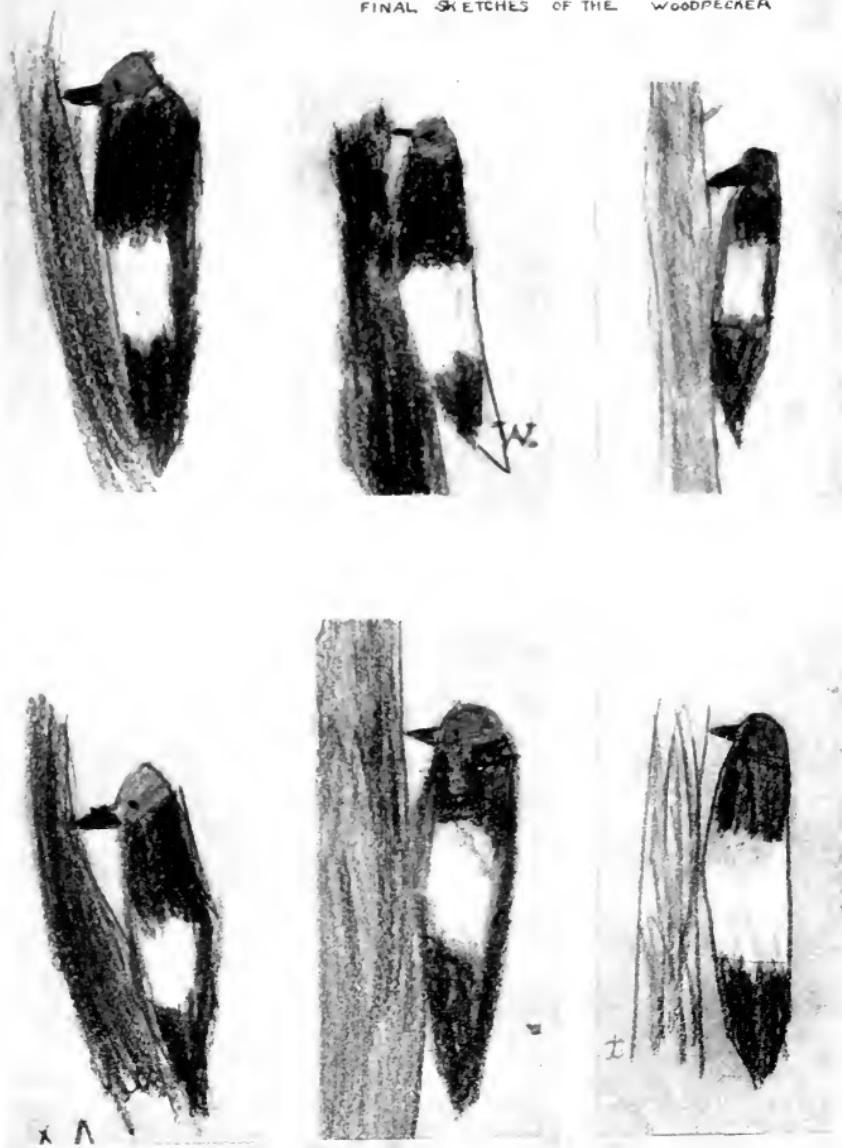


FIG. 71. DRAWINGS OF A WOODPECKER

knowledge. The new work of each succeeding year was based upon the processes learned during the year preceding, with frequent drill upon both old and new acquirements, in order that they might become permanent possessions.

In the case of the particular topic of birds, here used as an illustration of progressive method, the children at the close of the first year in school knew by heart the general lines upon which any bird is constructed and were able to draw a few selected birds well. This means that they had drawn them repeatedly on paper and on the blackboard until the forms were as familiar as those of handwriting. This kind of knowledge and familiarity gave the children ability to produce well-drawn shapes with the same freedom that characterized their first crude attempts.

The results which children in the second year produced were in advance of those of the first year in the following particulars: there was greater freedom on the part of the children in their method of drawing; there was much less need of questioning, and thus more independent work; attention was given to smaller details, such as bills, shapes of heads, and slant of legs and tails. Some of these points will be evident in comparing Fig. 73 with the drawings of the first year, shown in Fig. 72.

In the third year occasions arose for drawing the same birds which had been learned in the first and

GRADE I - MEMORY DRAWINGS - SEVERAL WEEKS
AFTER THE BIRDS WERE DRAWN



FIG. 72. MEMORY DRAWINGS IN GRADE I, OF DIFFERENT BIRDS

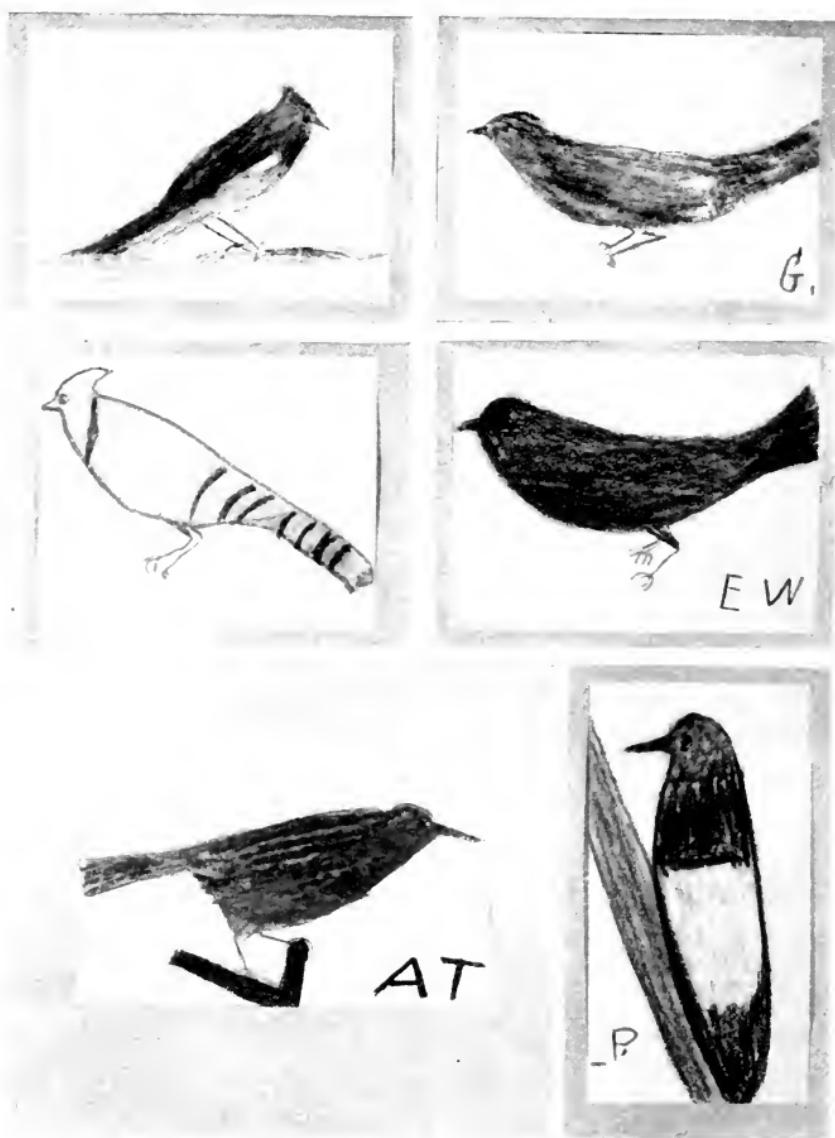


FIG. 73. MEMORY DRAWINGS IN GRADE II, OF DIFFERENT BIRDS

second grades. In doing this the children now showed the ability for adapting any form once learned. The following incident illustrates how previous careful

and detailed study of a bird form develops ability to represent characteristics readily.

A group of third-grade children had been on an excursion and had seen about fifteen kinds of birds, many of which they had never attempted to draw. The stuffed specimens of these were placed before the class, and each child was told to choose the bird he liked best and draw it. No suggestions from the teacher were given. The results of the study of structure of bird forms are evident in these drawings. The few forms which the children had learned with some thoroughness helped them to interpret the new shapes, either because of their similarity to, or difference from, the old and familiar shapes. Among the results there was not one which could not be easily recognized. Fig. 74 shows the average of this work.

At another time the children were told to draw any one of the fall birds from memory. This happened several months after these birds had been seen. It was interesting to note that every child in the group drew his bird according to the method by which he was first taught. (Fig. 75.)

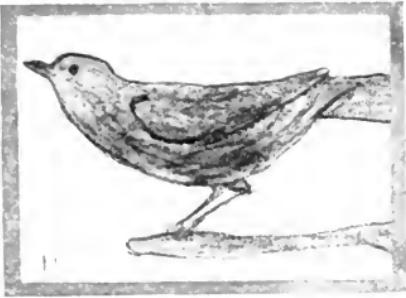
In the third year the previous experience and increased maturity of the children made possible a still closer study of birds. The children were able to draw any bird with which they were familiar. A great increase in skill was shown over second



FIG. 74. DRAWINGS IN GRADE III, OF DIFFERENT BIRDS (FROM THE OBJECTS)



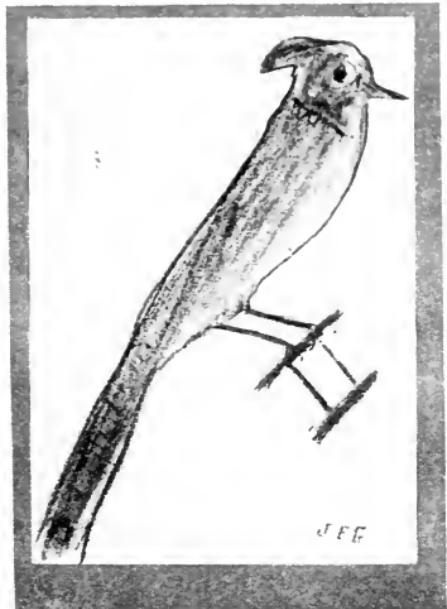
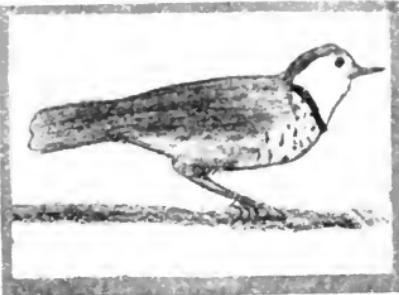
E.R.



P.



H.M.



J.F.E.



L.A.

FIG. 75. MEMORY DRAWINGS IN GRADE III, OF DIFFERENT BIRDS

grade, and more independent work was done. The less evident characteristics of birds were observed and noted, and a more careful record was made of the relation and proportion of parts.

This work with birds throughout the primary grades is one evidence that if a child is taught the actual construction of the object from the first, he will use this form when left to himself rather than his original crude symbol, provided he has practice sufficient to give him facility equal to that with which he made his early drawings.

This also indicates that the first symbol taught does not necessarily remain fixed, but that it becomes a means of assimilating the increasing store of facts of form accumulated by further study. Such a beginning thoroughly mastered gives a child confidence in his power to learn new objects with equal definiteness, and is an important influence in classifying his later knowledge of similar forms.

GRADES IV-V

With the careful work done in the preceding three years as a foundation, the children were now able to add to their general knowledge of bird forms quite exact details of appearance and structure which served as a record for the nature study and an elaboration of the pictorial drawing. The following points received especial attention during these years :



FIG. 76. SILHOUETTE DRAWINGS IN GRADE IV

1. Emphasis upon a truthful réprésentation, showing exact proportions, direction of slants, and outlines of shape.
2. Emphasis upon records of color, giving the characteristic markings of the bird. These were drawn with crayon and also with water color.
3. Emphasis upon silhouettes drawn with a brush and ink or black paint. These silhouettes are valuable as a means of testing the clearness of the mental image which has resulted from the previous study. They also give excellent practice in the use of the brush as a medium of expression. Fig. 76 shows bird drawings of Grade IV, and Fig. 77, work of Grade V.

4. Much time was given to using these familiar bird forms in a decorative way; for example, as units worked out on squared paper for a border or to fill a given space to be used as a tailpiece, etc. (Fig. 78).

GRADES VI-VII

1. The same forms that had been studied before were reviewed and new forms added.
2. Emphasis was placed upon better technical skill.
3. The possibilities of the different mediums for giving different characteristic effects were studied; for example, the kind of stroke of the brush or pencil or crayon tells much of the character of the bird form to be represented (Fig. 79).

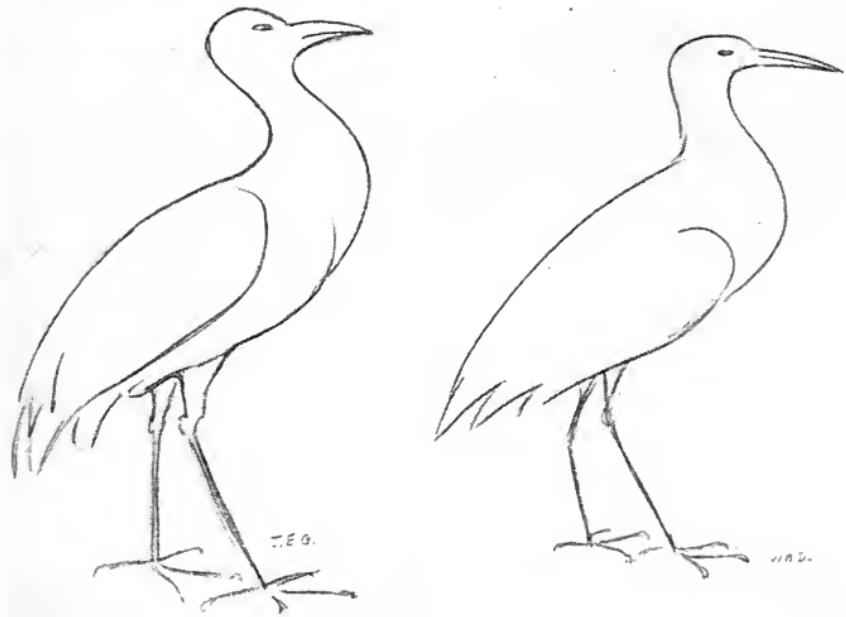
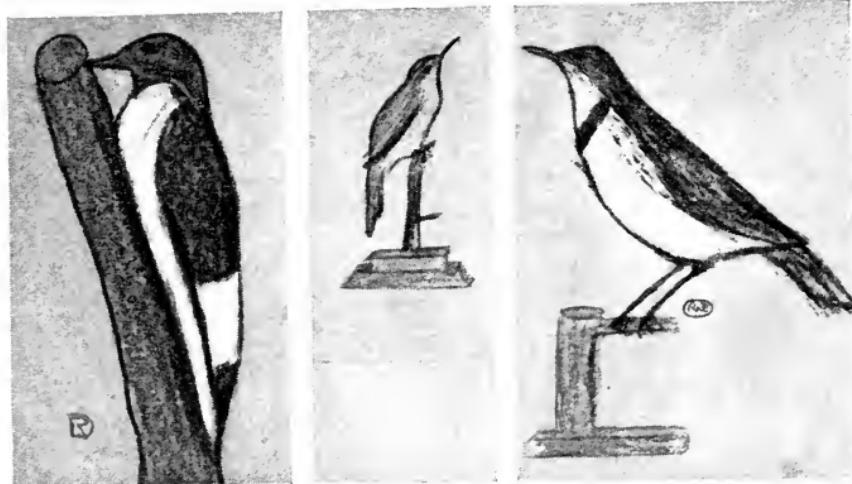


FIG. 77. DRAWINGS WITH COLORED CRAYONS AND WITH PENCIL,
IN GRADE V

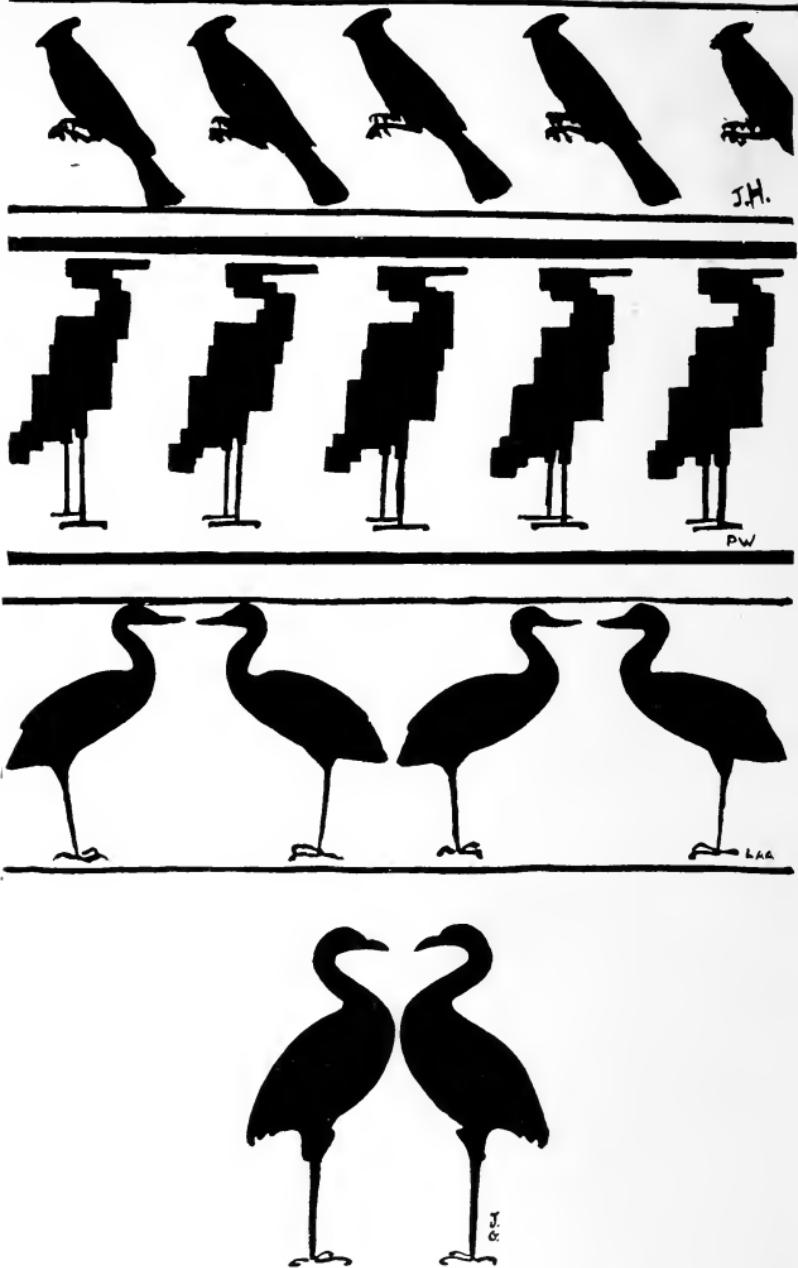


FIG. 78. ADAPTATION OF SILHOUETTE BIRD FORMS FOR DECORATIVE USES

GRADE VII THE CHILDREN
ARE ABLE TO DRAW ANY BIRD FROM
MEMORY OR THE OBJECT; TO INTERPRET
THEM THROUGH DIFFERENT MEDIUMS, AND TO
REPRESENT CHARACTERISTICS OF DETAIL

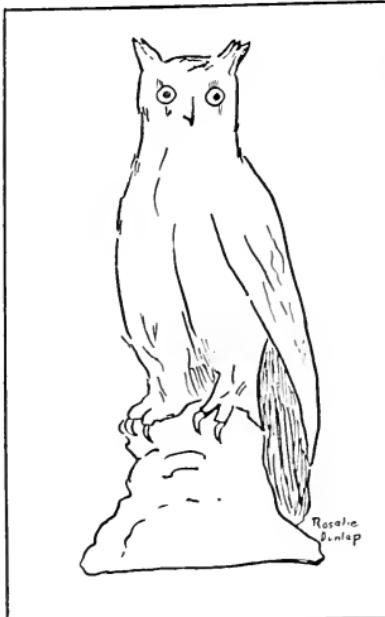
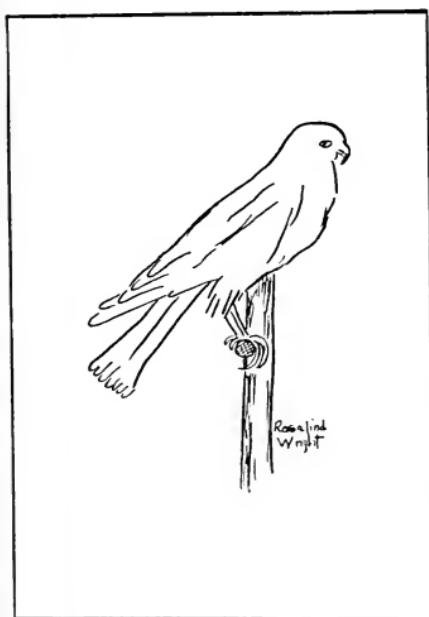
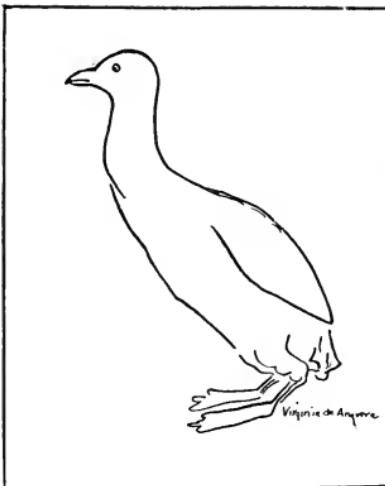
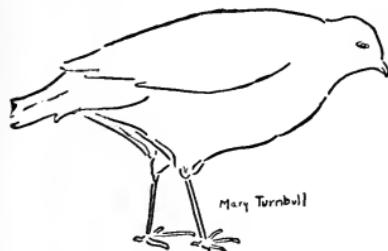


FIG. 79. DRAWINGS WITH PENCIL, TO SHOW THE EFFECT OF
PENCIL LINES AS COMPARED WITH THAT OF OTHER MEDIUMS IN
REPRESENTING FORM

GRADE VII

DECORATIVE INTERPRETATIONS OF BIRD FORMS—BY MEANS OF STRAIGHT AND CURVED LINES

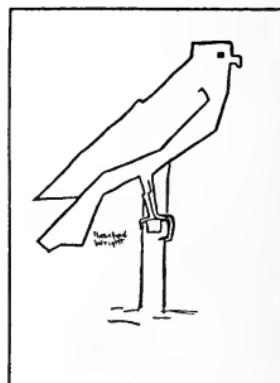
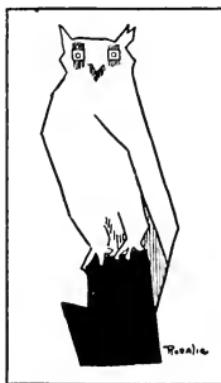
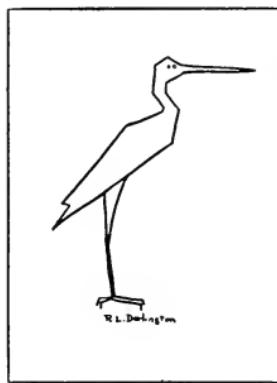
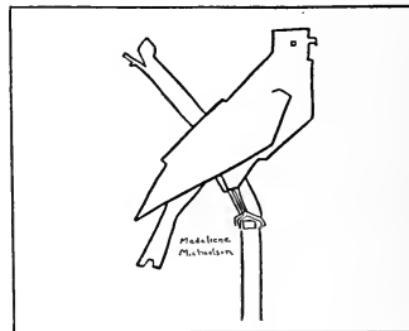
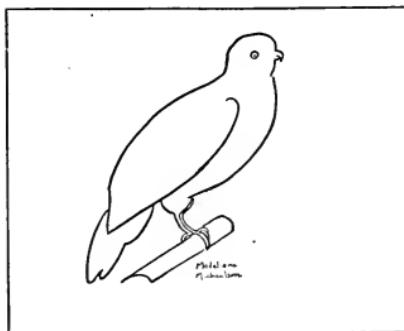
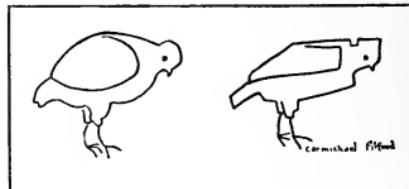
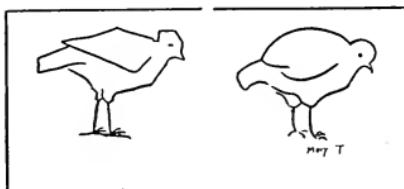


FIG. 80. ADAPTATION OF OUTLINE DRAWINGS FOR DECORATIVE USES

4. The bird forms which had been drawn were modified for purposes of design. Fig. 80 shows some of these decorative drawings of birds. These designs are the work of children in Grades VI and VII.

The work in these grades is partly to add new forms to the graphic vocabulary and partly to develop that greater knowledge of form and skill in representation which is necessary if the ability of the children to express their experiences is to satisfy the demands of their new powers of perception. The results from the first grade through to the seventh—namely, a steady increase in the accumulation of knowledge of form, continually growing skill to represent form satisfactorily and to use the shapes as elements of design—seem to indicate that the early mastery of a few typical forms gives greater variety and spontaneity at the end of the course than does unguided spontaneous drawing, however industriously practiced.

THE DRAWING OF PLANTS

Plant drawing occurs for the most part in direct connection with natural history throughout the grades. During the first three years the plant drawing is of two sorts: first, drawing for general pictorial effect of those characteristics which appeal to children; and second, drawing for the purpose of keeping records of plant growth. Under the first head the children draw flowers which are growing in the schoolroom or in the garden or which they bring in. In this work soft crayons are used. The entire effect is usually sketched in first, with white

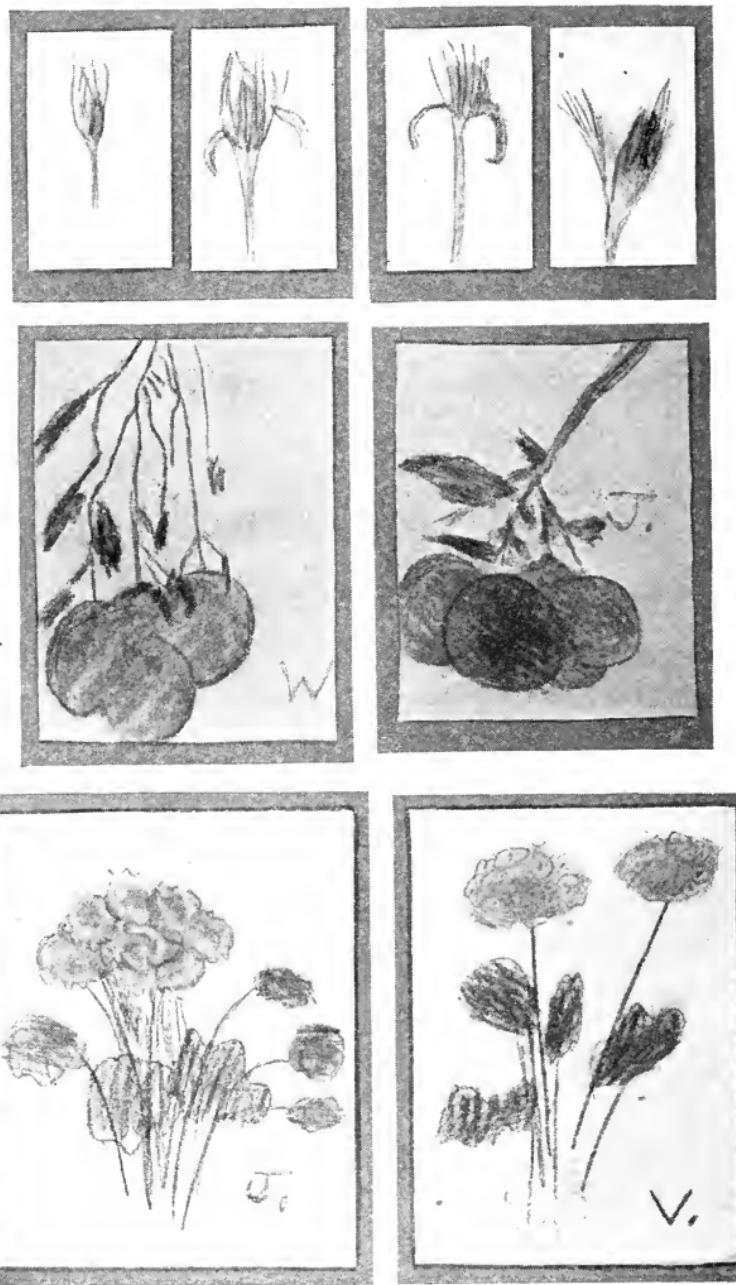


FIG. 81. PLANT DRAWINGS IN GRADE I

GRADE II. CRAYON SKETCHES

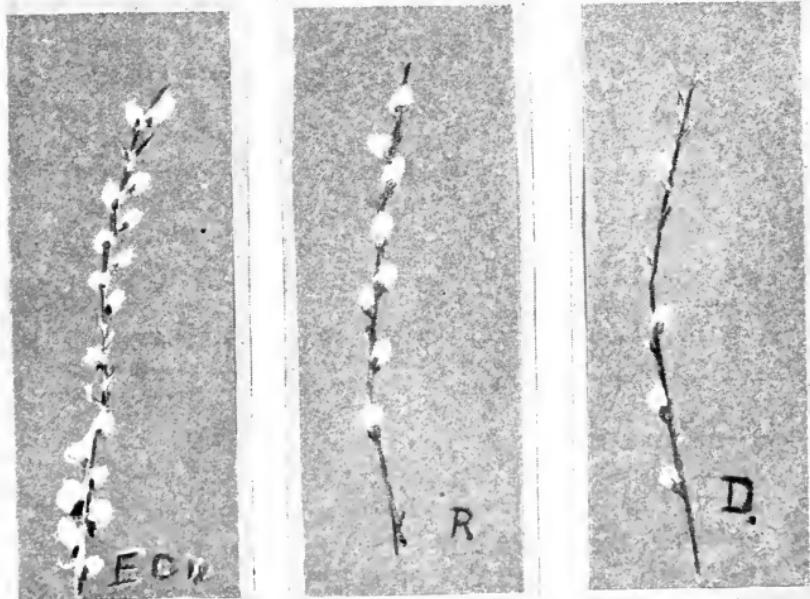
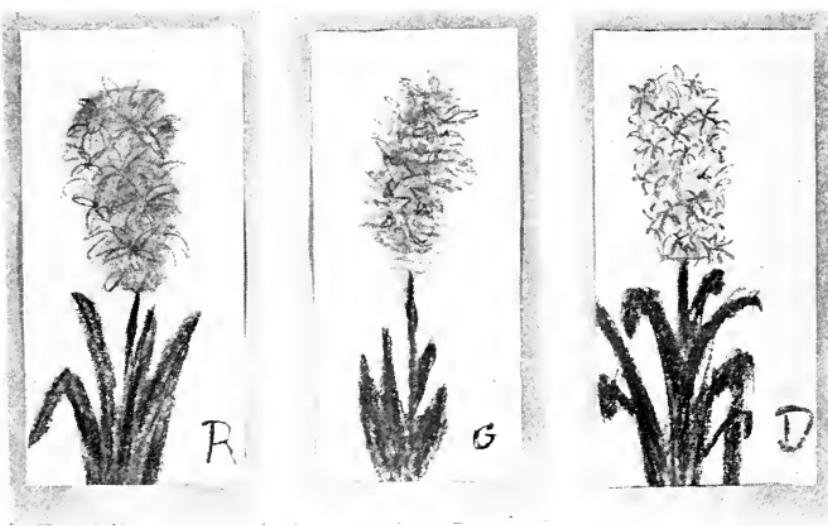


FIG. 82. PLANT DRAWINGS IN GRADE II

chalk. The flat side of the crayon is used, in order that the strokes may be big and free. The colors are then put over this white ground by following so far as possible the same strokes. The value of this preliminary sketching in white is, in the first place, that the children have a means of planning out the whole drawing in some medium that is not obtrusive, and which gives them the greatest freedom; in the second place, the white modifies the effect of the brilliant-colored chalks and gives them more nearly the appearance of the softer colors of the plants. The children obtained their suggestions regarding methods mainly from watching the instructor make a drawing first. Fig. 81 shows drawings by children in Grade I; Figs. 82 and 83 show drawings by children in Grade II; and Figs. 84 and 85, by children in Grade III.

An example of the second kind of plant drawing, namely, that which is used as a record of growth, is the following. The children in Grade I planted bulbs in October. They first made a drawing of the bulb, then of the flowerpot after the bulb had been planted. When it sprouted, another drawing was made. This was followed by successive drawings, illustrating different stages through the growth and flowering (Fig. 86). Another example occurred when the children were making studies of different trees and needed to make drawings which showed the

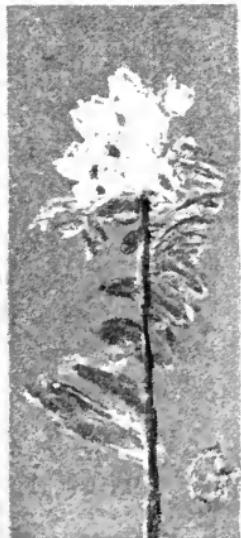
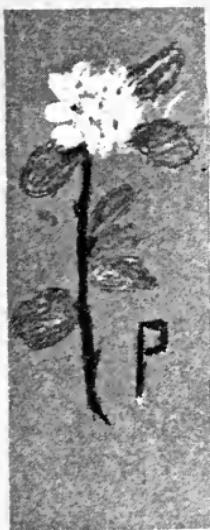


FIG. 83. PLANT DRAWINGS IN GRADE II

different kinds of leaves. Fig. 87 shows drawings of leaves from Grades I, II, and III. During the first three grades the greatest value of this kind of drawing comes by way of the class criticisms. The



FIG. 84. PLANT DRAWINGS IN GRADE III

children gain more from this sort of discussion than from any criticism made by the instructor. When these plant drawings can be well made and have served their purpose in connection with the nature study, the children generally have the image well in mind. It is possible then to carry the drawing

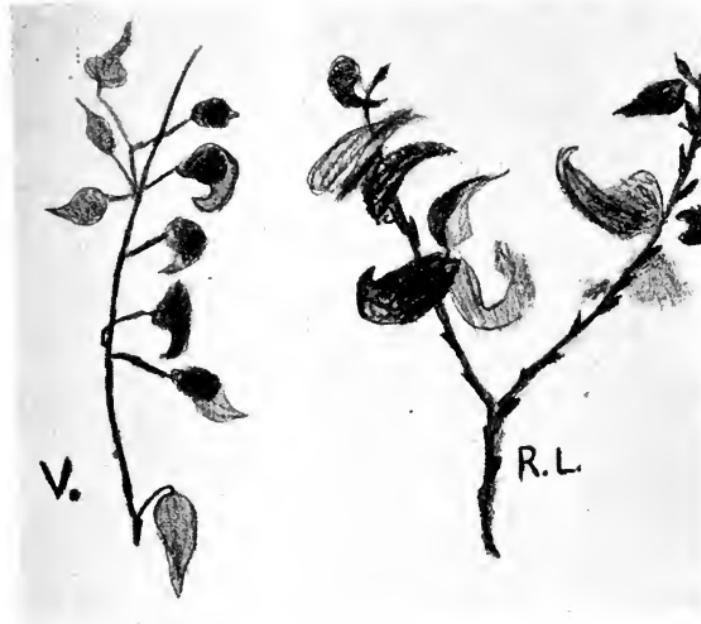


FIG. 85. DRAWINGS OF LEAF SPRAYS IN GRADE III

into another field and use these plant shapes as motifs for borders or as decorative spots. Fig. 88 shows different border designs made from plant forms

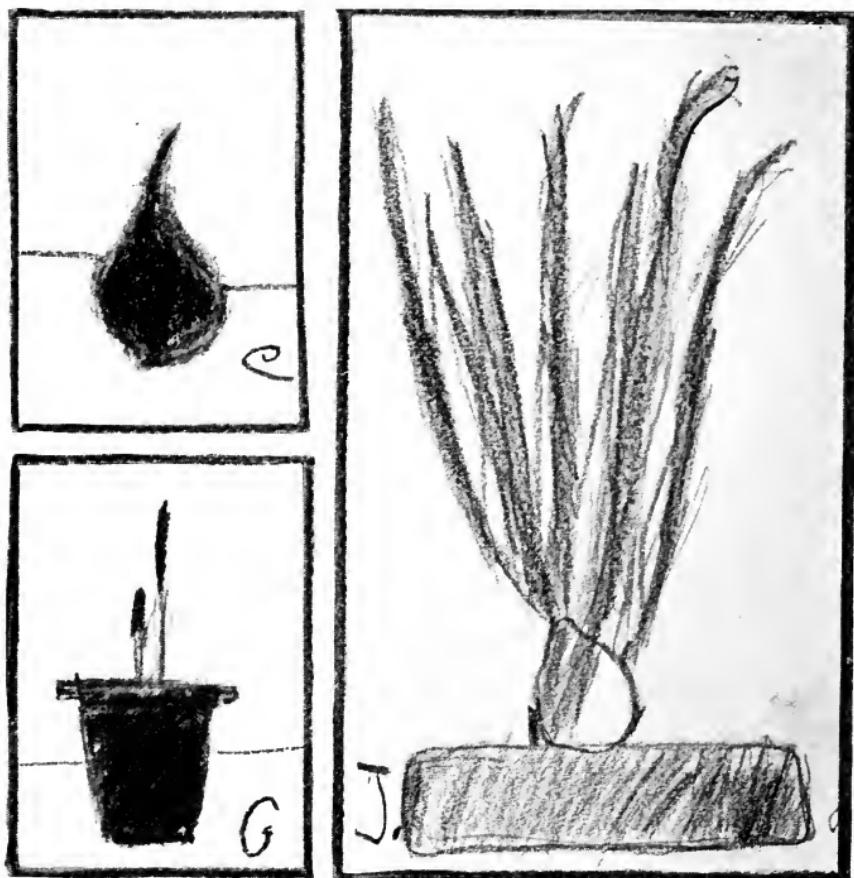


FIG. 86. DRAWINGS SHOWING THE GROWTH OF A BULB

in Grades I and II. Fig. 89 is an illustration of a plan for a garden plot, drawn by a third-grade child. She has made decorative units from the shapes of the vegetables which she planted and has thus added to her drawing the element of design.

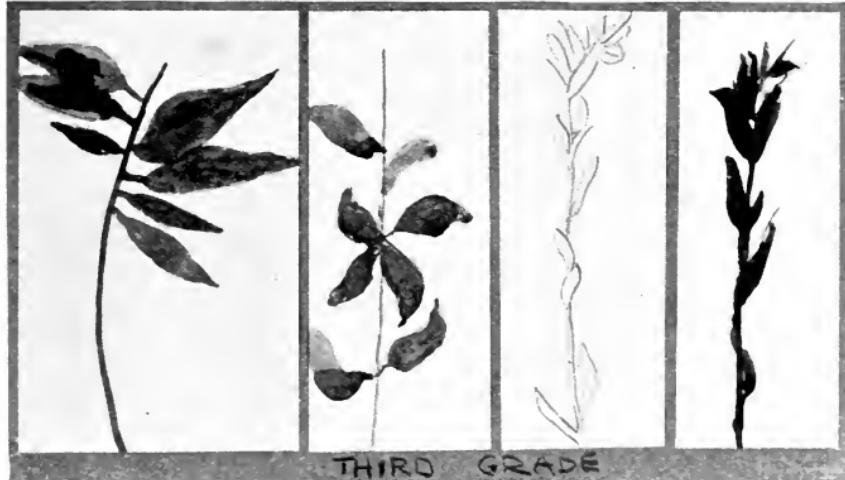
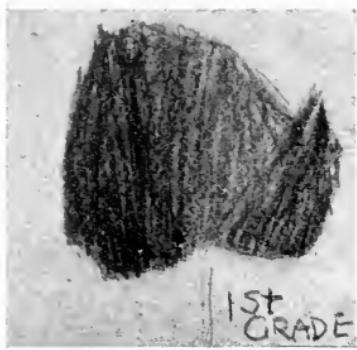


FIG. 87. DRAWINGS OF LEAVES, SHOWING PROGRESS FROM GRADE I TO GRADE III

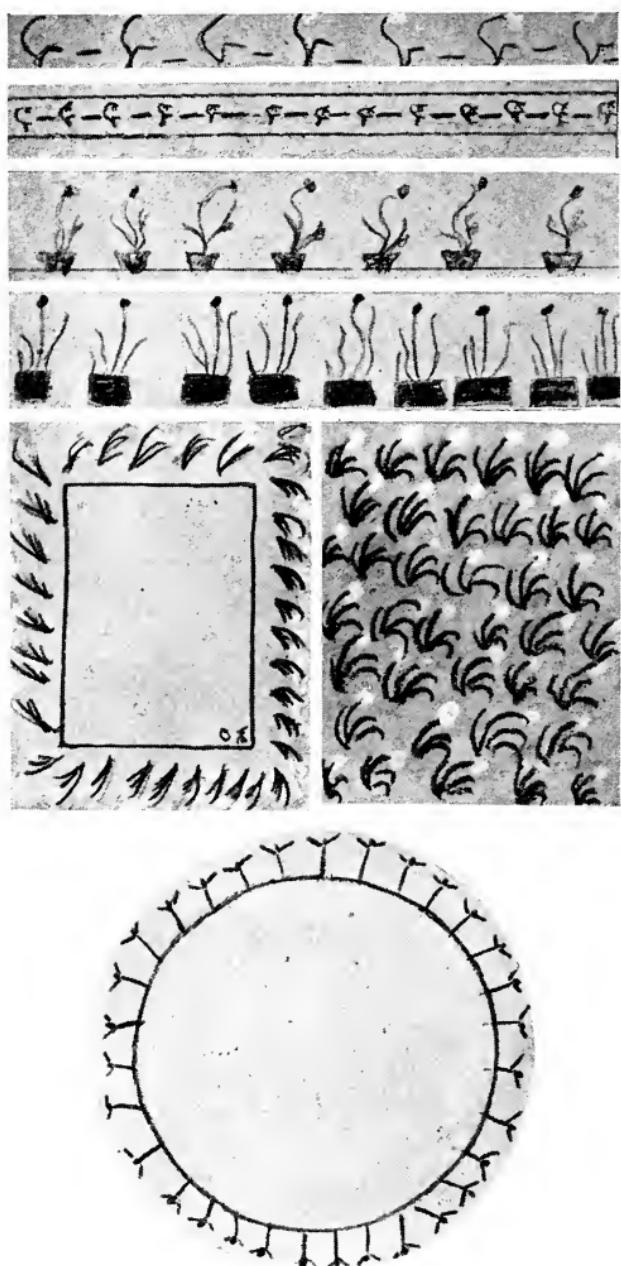
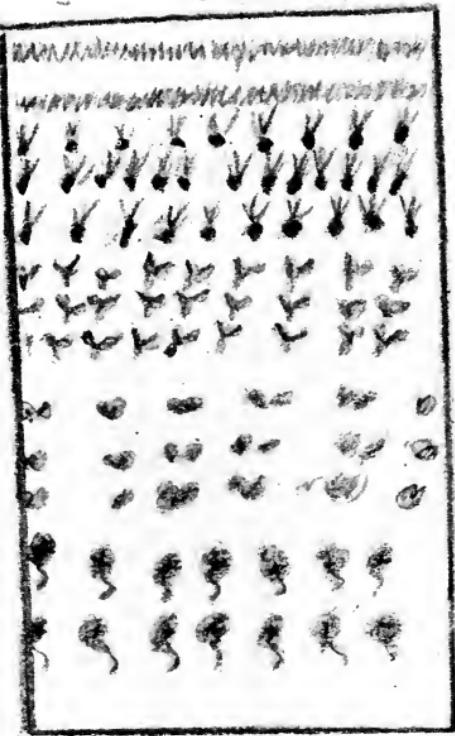


FIG. 88. DESIGNS FROM PLANT FORMS



MARGARET R.

GARDEN PLOT

- ONION
- RADISH
- LETTUCE
- NASTURTIUM
- MIGNONETTE

FIG. 89. PLAN FOR A GARDEN PLOT

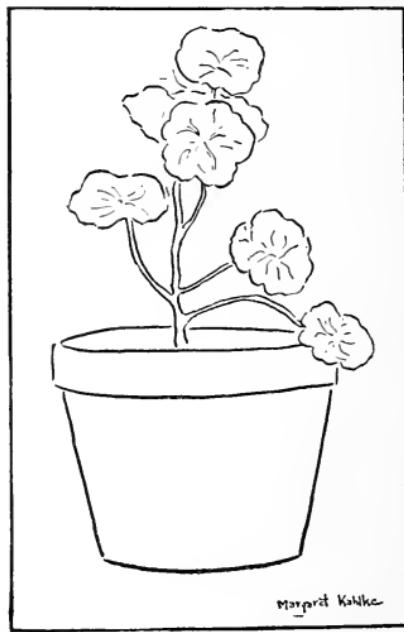
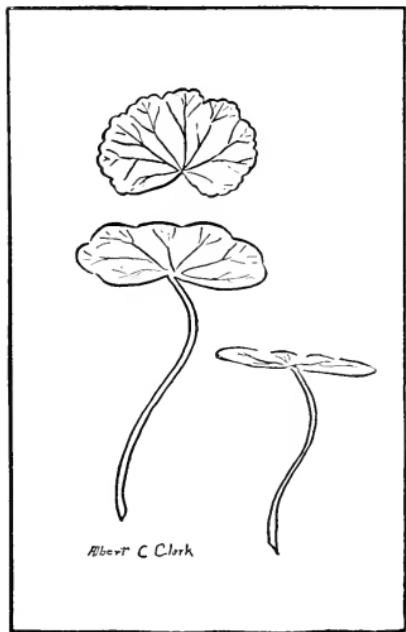
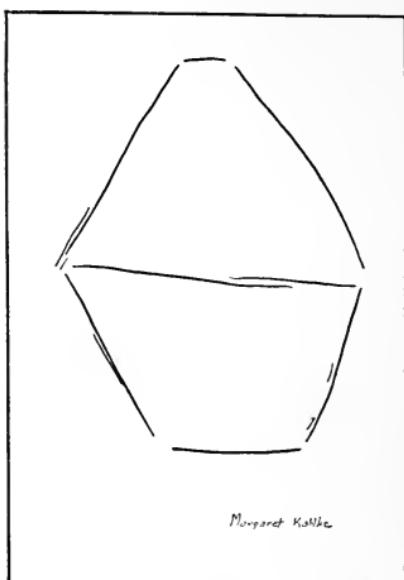
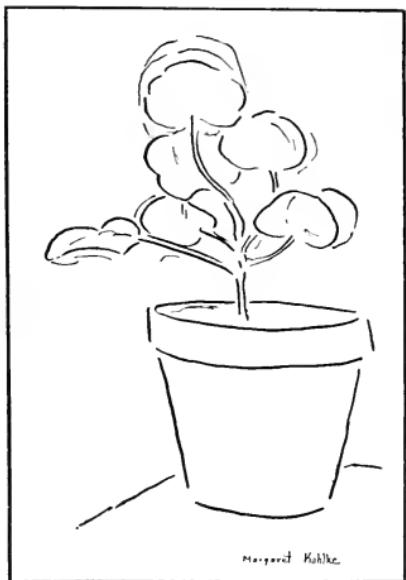


FIG. 90. PRELIMINARY STUDIES OF A GERANIUM PLANT

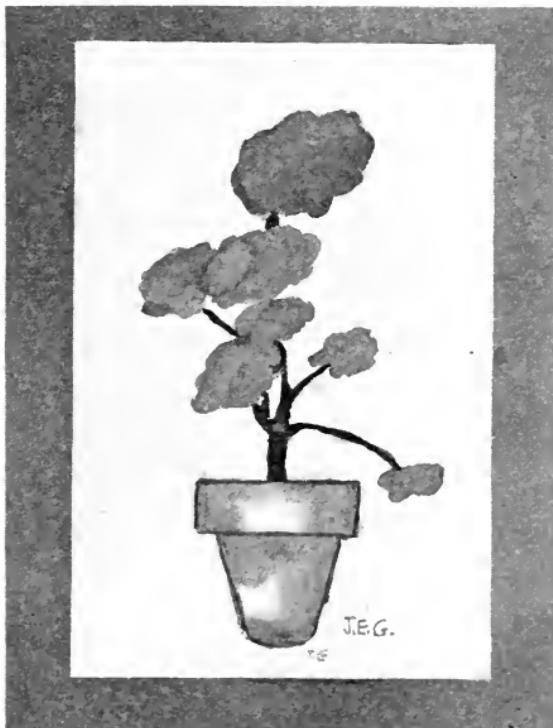
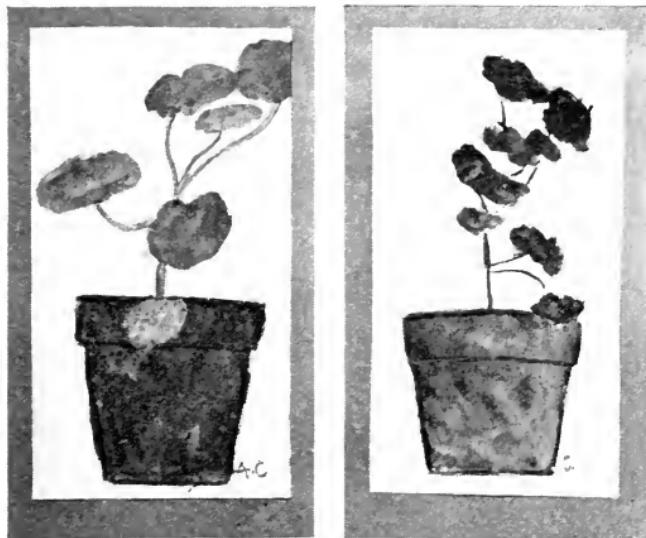


FIG. 91. FINAL DRAWINGS OF A GERANIUM PLANT

In Grades IV, V, VI, and VII the drawing of plants becomes much more detailed. One or two plants are selected for each grade. The problem of proportions and characteristics is emphasized, and attention is given to careful representation of details of growth and the foreshortening of the leaves. Fig. 90 shows

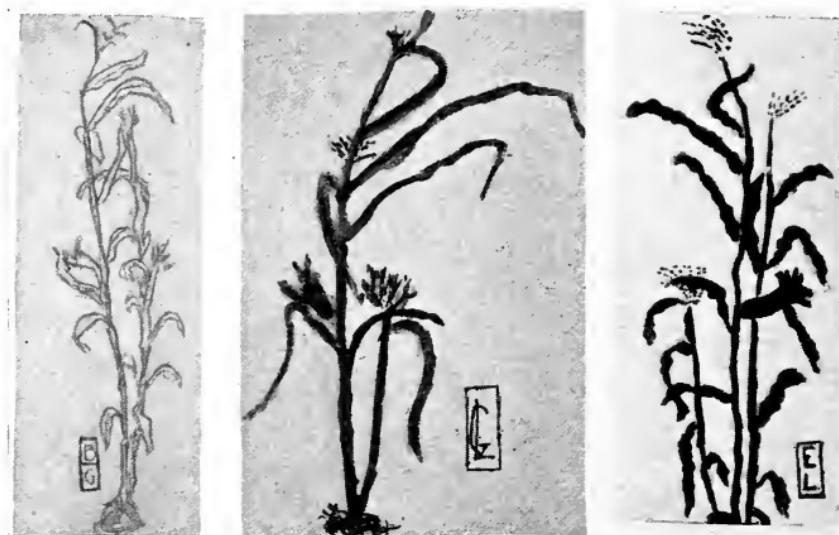


FIG. 92. DRAWINGS IN CONNECTION WITH NATURAL SCIENCE

the steps which were followed in Grade V in order to obtain a careful drawing of the geranium plant, and Fig. 91 shows the final results.

Fig. 92 shows drawings of corn stalks, made in connection with science work. This particular plant was chosen because a special study is made of it in the natural sciences. In these grades much emphasis is placed upon interpreting into decorative patterns the forms which have been drawn in detail and which

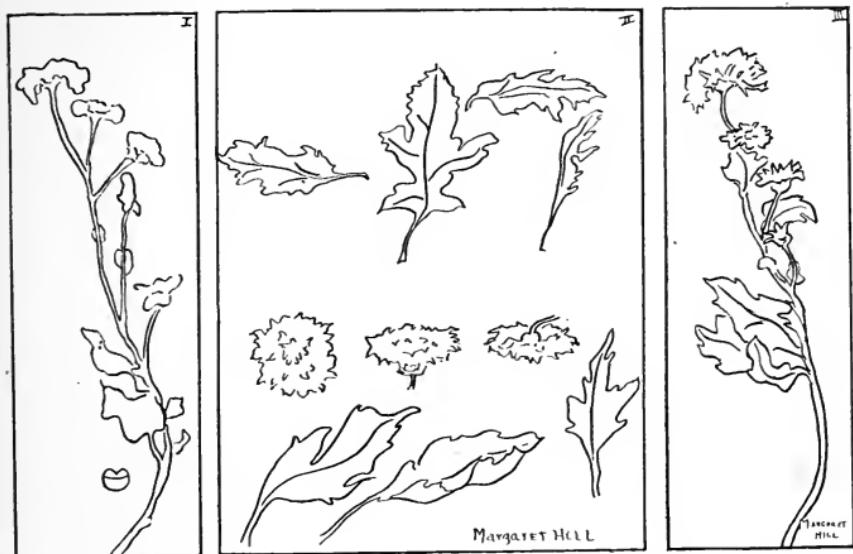


FIG. 93. DRAWINGS TO SHOW DETAILS OF ACTUAL FORM



FIG. 94. DECORATIVE TREATMENT OF FORMS SHOWN IN FIG. 93

have thus become familiar. These patterns are sometimes worked out on squared paper and sometimes made by repeating the form with free brush strokes until it acquires a decorative character. Decorative

drawings are also made. These are worked out in different mediums—crayon, charcoal, pencil, water color, ink, etc. In all the grades each child mounts his work either on another sheet of paper or upon a page for one of the books which he has made. This cutting and spacing of margins proves to be an important problem of design. Figs. 93 and 94 show a series of plant drawings by one child in Grade VII, including details of actual form and also decorative treatment.

THE DRAWING OF THE HUMAN FIGURE

The human figure is of all forms the most interesting to children. In the primary grades children depict it freely by means of crude conventions. These symbols are frequently out of all true proportion and are caricatures. In spite of this, they are almost always full of expression. They tell vividly the story the child has in mind. During the first three years in school, children are so completely influenced by the movement of the story to be told when human figures are involved that they rarely pause to notice details of appearance which do not contribute directly to the action of the narrative, and which from their point of view are of small consequence.

On this account little is lost during these grades if the study of the actual appearance of the figure receives only incidental attention. However, some

specific study of the form does improve the powers even of primary children to represent the human figure. Figs. 95 and 96 show the successive drawings by one child which illustrate the following steps. After the children in Grades II and III had sketched an illustration for Stevenson's "Marching Song" (Fig. 95, *A*), using their ordinary symbols for the figures, they were given pictures of boys and girls, some of which were reproduced by hectograph and others cut from magazines. Fig. 95, *B*, shows the four figures this child chose from the sheet of drawings given her, as being the most appropriate for her sketch. Each child colored with crayons the figures he selected. The covering of the surface gave them more intimate familiarity with the form than could be gained merely by looking at it (Fig. 95, *C*). They then cut out the shapes with scissors and also traced them (Fig. 96, *A*). After this they drew from memory the figures they had previously traced and cut (Fig. 96, *B*). They then repeated their sketch for the poem. A comparison of these second sketches (Fig. 96, *C*) with the first (Fig. 95, *A*) showed that some definite knowledge of form had been gained by following the shape of a good drawing, as the children had done when they colored it and cut it out. In Fig. 97 there are shown the first drawings, *A* and *B*, and the last drawings, *C* and *D*, made by two other children for this same poem, following the method just described.

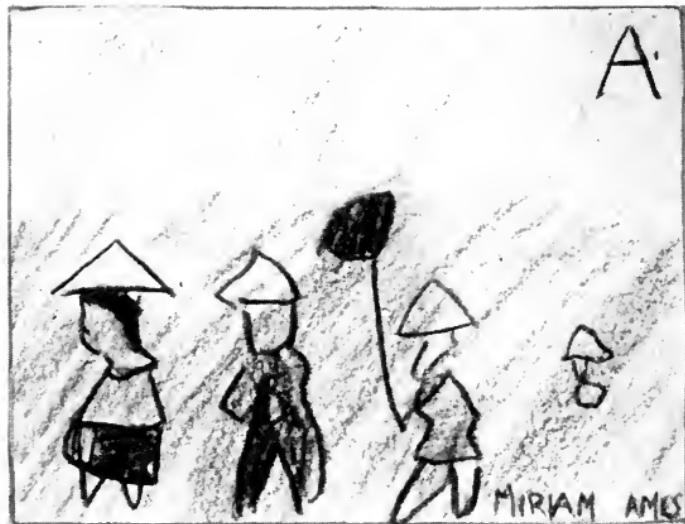


FIG. 95. THE FIRST THREE OF A SERIES OF STUDIES FOR AN ILLUSTRATION



A



B

M.A.



C

FIG. 96. LAST THREE OF THE SERIES OF STUDIES BEGUN IN FIG. 95

This work from pictures was supplemented by occasional drawings from children who posed in positions illustrating the story, but the drawing from actual figures did not contribute so much to the power of the children in these grades to represent the figure well as it did later on.

By the time the children have reached the intermediate grades they have grown more critical of the human figure than of any other of the forms which they are called upon to draw. It has more expressiveness for them, since they themselves are human beings, and they feel more readily any departure from the actual appearances. Some systematic study of figures from life and of pictures is needed to give them confidence. The following steps show how this material was presented in illustrations for European history in Grade V. It became necessary to use the figure in action. The children first drew the figure, representing the action merely by skeleton lines. Upon these lines they then built up the form as well as they could. In preparation for this work they had cut from magazines and newspapers a collection of figures in action. From these they selected those which showed the sort of action required for their stories. They then placed tracing paper over these and indicated not the outline of the form but the skeleton lines which showed the action and upon which the form might be built. These they filled out

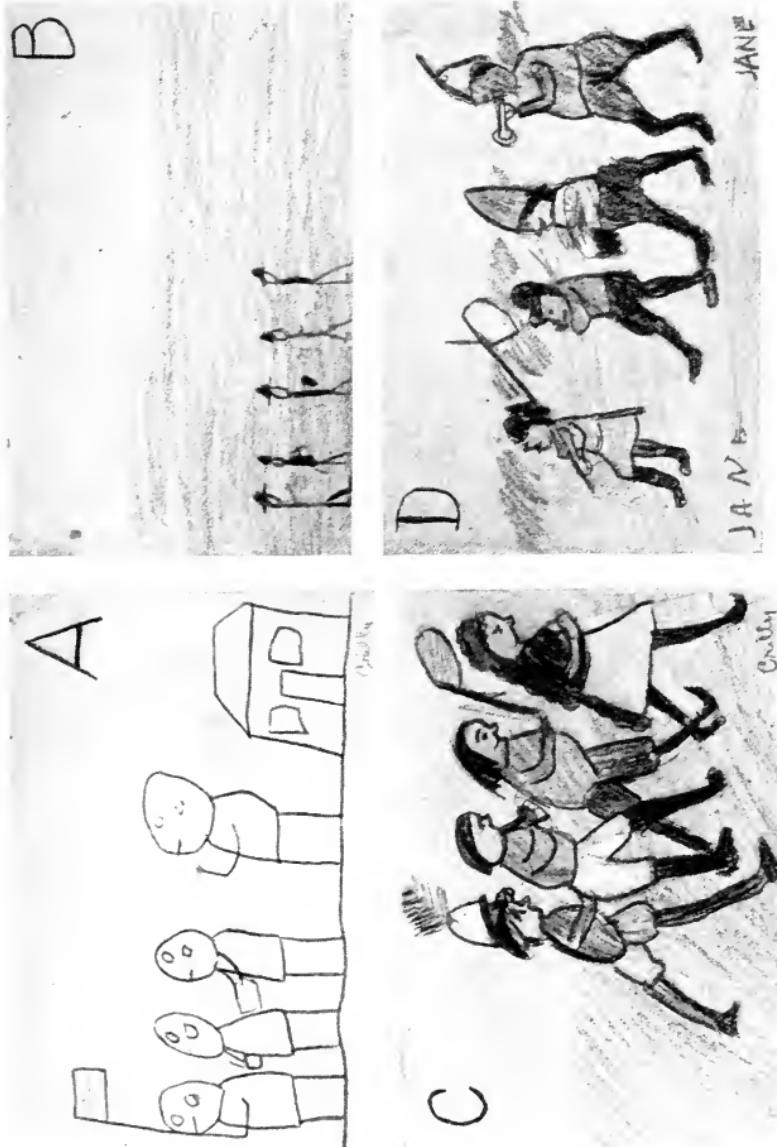


FIG. 97. FIRST AND LAST DRAWINGS OF A SERIES (BY TWO CHILDREN)

as best they could without the picture. This gave them figures the proportion and action of which were the same as those of the pictures and enabled them to make a closer comparison of shapes than would have been possible otherwise. After comparing their drawings with the picture, they made the corrections suggested. After this they drew the same figure from memory on tracing paper and then placed their drawings on the picture in order to note the variations. They then cut out the figures which were best adapted to illustrate the story and assembled them in a good composition. With the suggestions thus obtained they sketched in on another piece of paper their plan for the final illustrations. Different children posed in the positions required, and from these additional data were obtained. The drawing was then completed. Fig. 98 shows successive drawings made by one child in illustrating the story of Clovis praying to the vision of his wife. Fig. 99 gives drawings by another child, showing a band of German warriors crossing a river. Fig. 100 shows completed drawings by four other children.

In Grades VI and VII, children who have had a good deal of practice with free illustration during the primary grades, and with careful comparison of their own drawings with good figure drawings in the intermediate grades, are able on the basis of this experience to take up a more detailed study of the figure

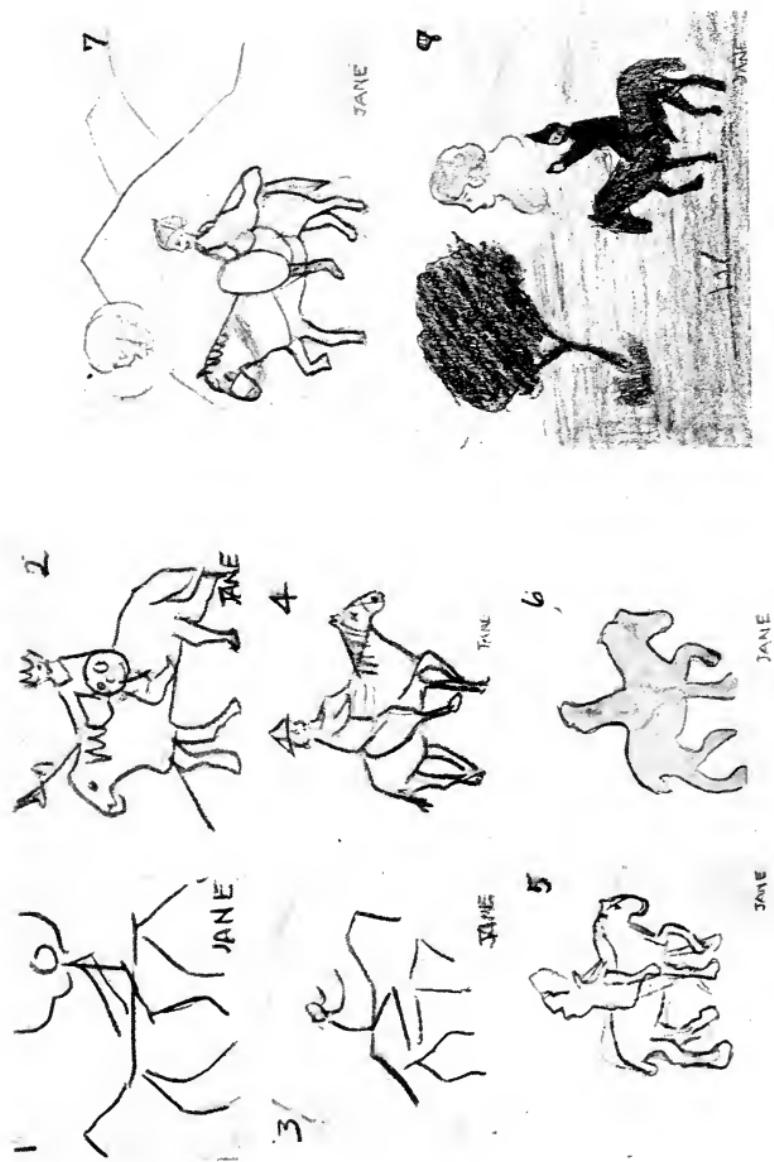


FIG. 98. SKETCHES SHOWING SUCCESSIVE STEPS IN MAKING AN ILLUSTRATION

FIG. 90. SKETCHES SHOWING SUCCESSIVE STEPS IN MAKING AN ILLUSTRATION

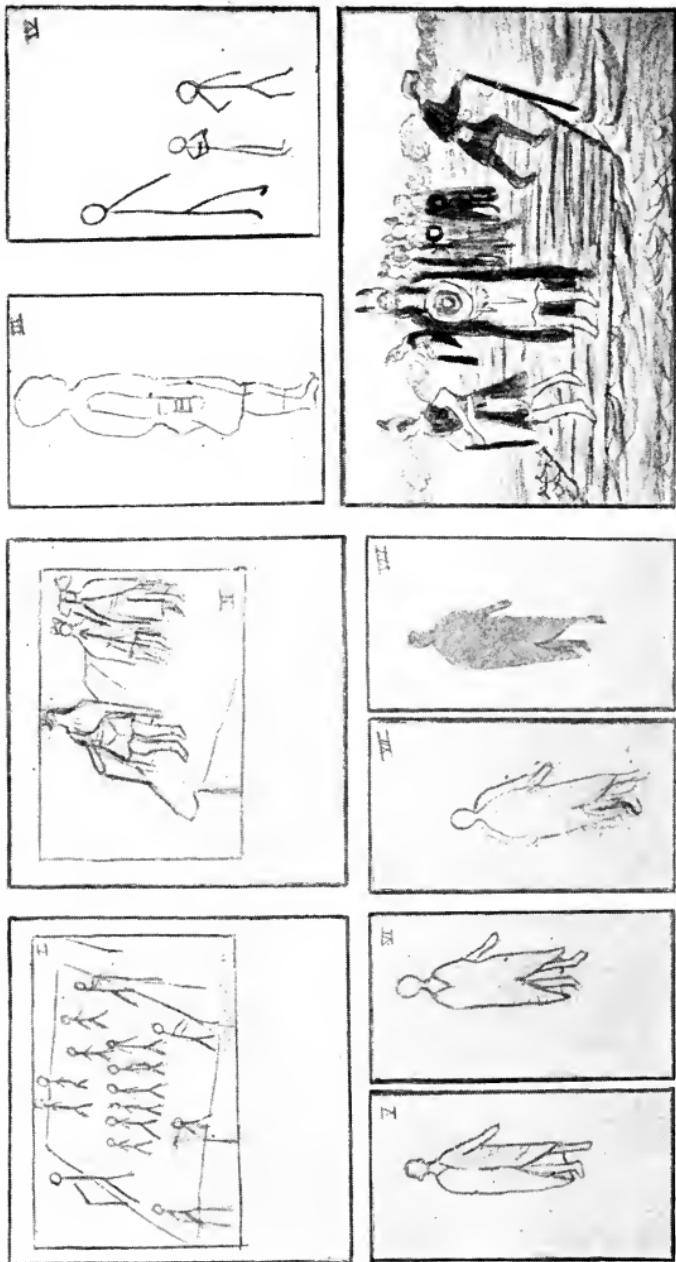
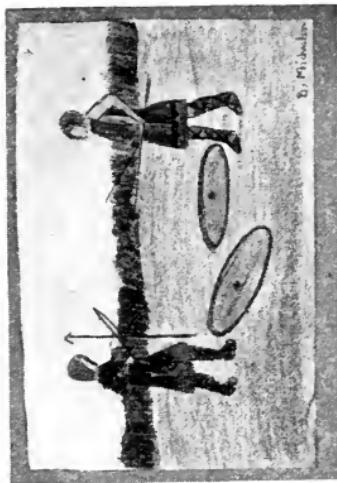


FIG. 100. FINAL DRAWINGS FOR FOUR ILLUSTRATIONS



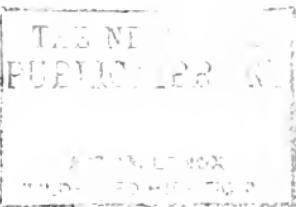
than would otherwise be possible, even though the steps followed are similar to those followed in the intermediate grades. The children obtain a much more definite knowledge of form from them.

This was the order of procedure. The children first planned their illustration by sketching the figures in skeleton lines to show the pose and action. When the results were reasonably good, they filled out these skeleton lines, making the shapes of the figures as satisfactory as they could. They then obtained added suggestions from the following sources; they themselves took the position of one after another of the figures, in order to feel more vividly the action involved — this is a method often used by artists in their efforts to appreciate the action of particular figures; they watched others who performed the actions necessary to the story, and got what data they could while the figures were in action, instead of having them hold one position which would indicate arrested action; to the suggestions obtained from these sources they added those from picture collections.

On the basis of this new knowledge they drew another sketch, first arranging the position by means of skeleton lines and then completing the figures with as much significant detail as they could introduce. They noted those phases of the figure of which they were most ignorant, and made note of what they needed in order to improve their drawings.



FIG. 101. FINAL DRAWINGS ILLUSTRATING COLONIAL LIFE



They chose good figure drawings from magazines or elsewhere which showed in detail the points regarding which they needed more knowledge. They sketched the skeleton lines of these from the pictures and filled out the details as completely as possible,



FIG. 102. ILLUSTRATIONS FOR STORIES OF KING ARTHUR

comparing their drawing with the picture at various stages. They then studied the appearance of certain parts of the body—for example, the head, hands, and feet—in different positions. Even in these grades it was often found that more rapid progress was made, and greater freedom and skill to represent the figure easily and in various positions was obtained, from placing considerable emphasis



FIG. 103. ILLUSTRATIONS FOR STORIES OF KING ARTHUR

upon tracing and copying and in other ways studying actual drawings than from drawing directly from the pose. This does not mean that drawing from the

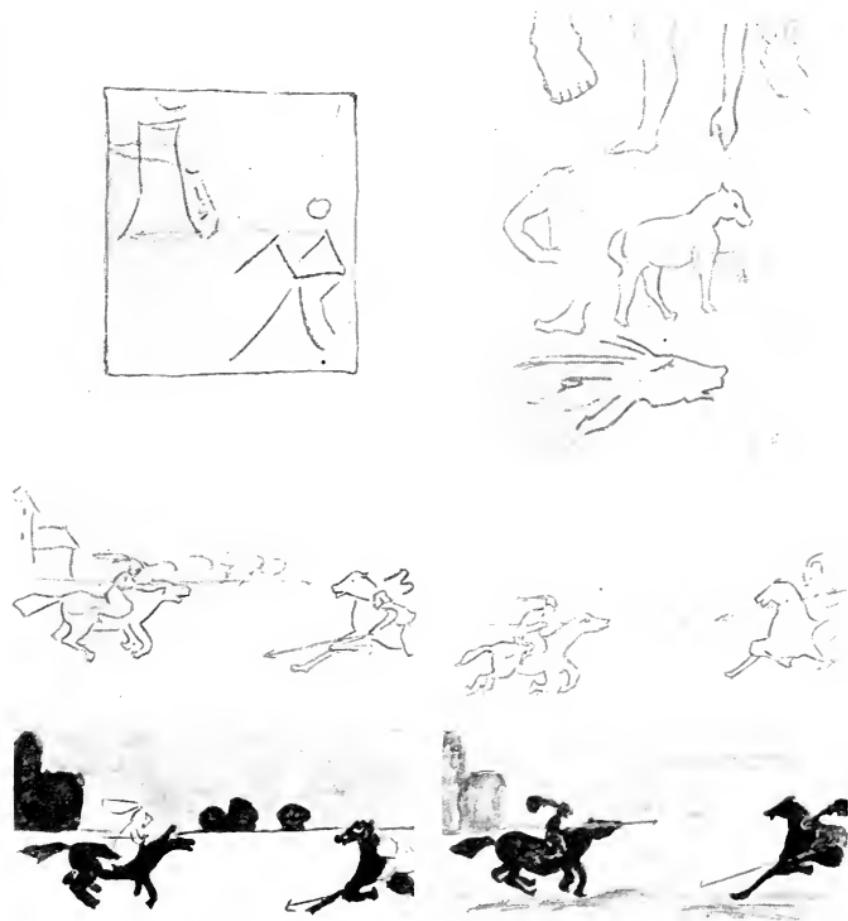


FIG. 104. SUCCESSIVE STEPS IN MAKING AN ILLUSTRATION

pose was not of value, but that its relative value was less than that of the study of pictures. Fig. 101 shows final drawings illustrating colonial life by children in Grade VI, and Figs. 102 and 103 are

illustrations of stories of King Arthur by children in Grade VII. Fig. 104 shows the successive steps of one child in making such an illustration.

Much is said regarding the drawing of the human figure as a means of training æsthetic appreciation. However this may be in the high school, it is fair to question whether children in elementary grades do not arrive more directly at appreciation of the æsthetic beauty of the body from artistic gymnastics, where they experience as well as see the motions, than from any attempts, which at this age must be crude, to represent the beauty of the figure. At its best, the figure drawing in elementary schools usually results in somewhat of a caricature of the human form and is more valuable for its dramatic or story-telling use than as a means of developing æsthetic sensibility.

CHAPTER III

THE DRAWING OF CONSTRUCTED OBJECTS

The various themes selected from the other subjects of the school curriculum call continually for drawings of constructed objects. These drawings necessitate ability to represent spatial relations correctly and to picture various perspective effects of foreshortening, distance, etc. A large part of this ability can be developed sufficiently by the illustrative drawing. In nearly every grade, however, the questions of the children show that their perceptions of form and structure and perspective effects are growing clearer, and that their clearer perception awakens a desire to draw these items better. In the first three grades these questions refer mainly to the salient characteristics of objects; they are such questions as, "How do you draw a house?" "How do you draw a table?" etc. Their remarks also indicate a desire to experiment; for instance, "I want to make my table red" or "May I have a blue wagon?" To someone who told a child that he should not have chosen a blue crayon with which to draw a chicken, because chickens were never of that color, he replied, "If you will let me have the

crayon, I'll show you how a chicken would look if it was blue." They are satisfied at this time with very simple means of representing effects.

In Grades IV and V the children are easily discouraged with their attempts to draw objects when they cannot represent the structure, or material, or proportions correctly. In Grades VI and VII they are not satisfied unless they can represent the more detailed characteristics of individual objects and the pictorial effects of perspective. The beauty of form and proportion awakens a keen interest at this time.

These interests are sufficiently strong to make the children very willing to stop the illustration of a theme in order to master a pictorial effect which presents difficulties. They will work upon one problem for a considerable time with great enthusiasm, if the instruction offers steps which make their progress evident to them. Ability to use these forms in illustrative work is the ultimate motive, but the sense of rapidly growing power furnishes a sufficiently strong immediate impulse. These are the occasions for drill, the occasions when certain effects can be mastered once for all and when skill is gained with greatest economy of time and effort.

The following pages describe progressive steps planned to give children at different stages of school life the skill of which they feel the need.

THE BEGINNINGS OF OBJECT DRAWING

GRADES I-III

During the first three years in school the minimum amount of supplementary practice is needed. The children at this age draw mainly for the sake of telling a story of action, and consequently the inanimate objects are useful only as suggestive material. Even in these grades, however, rapid progress is gained by devoting some time to the special study of object drawing. For example, in illustrating incidents of the school garden it became necessary to picture the hoe, spade, trowel, etc. The children first traced around the actual objects as they were held against the blackboard. Some then drew the shape full sized on the board, to see if they could produce one as good as the one traced, while others drew on paper at their desks. All then cut from paper the shapes of the garden implements. They then modeled these in clay, after which they made their final drawings. Fig. 105 shows a few of these.

In another instance the illustrated theme called for a United States letter box. In most of the drawings, lines which should have been vertical were slanted. The children tried to show on the board how nearly vertical a post they could draw for the box and how well the upright lines of the box could be made to conform in direction to those

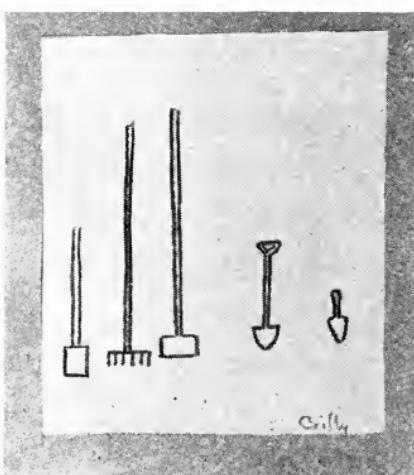
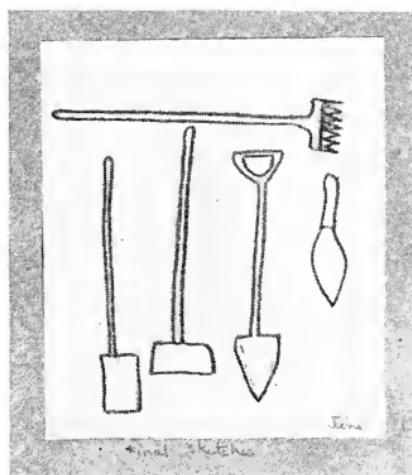
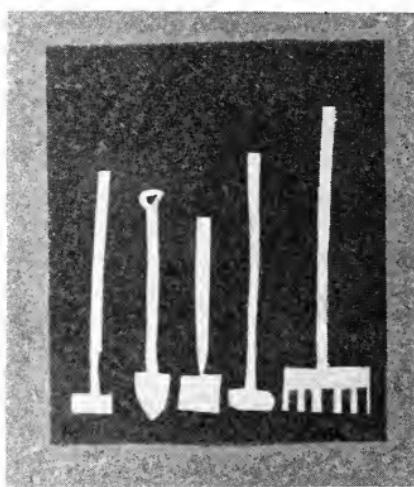
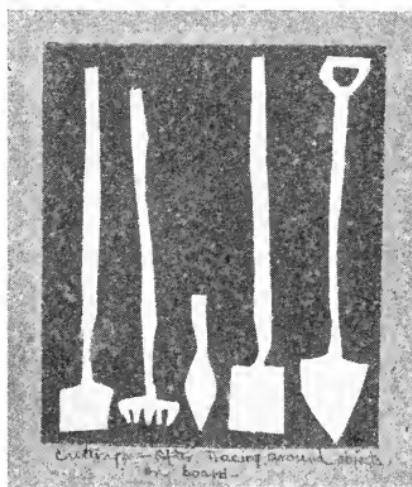
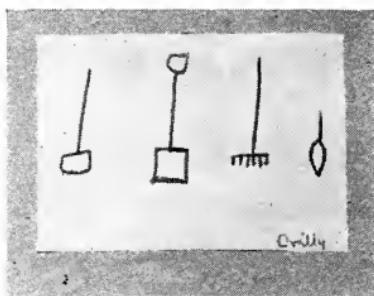
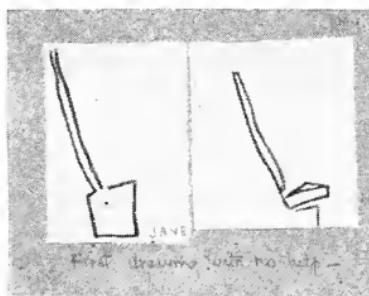


FIG. 105. FIRST SKETCHES AND LATER CUTTINGS AND DRAWINGS OF GARDEN IMPLEMENTS

of the post. They then made cuttings from paper to show the proportions and shape of the box. These they took with them on the way home, in order to make comparisons with the actual mail box. When they returned, the shapes were discussed, and the children chose those which were most like the

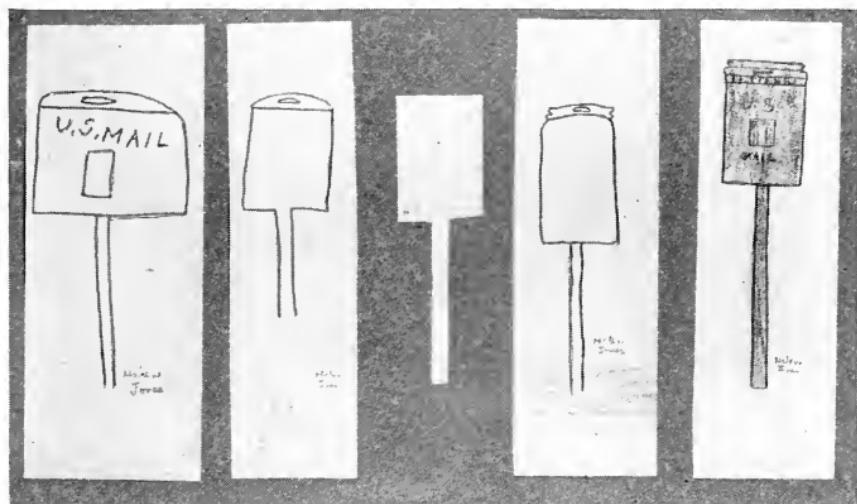


FIG. 106. A CHILD'S SUCCESSIVE STUDIES OF THE SHAPE AND PROPORTIONS OF A LETTER BOX

proportions of the box as they remembered it. They then drew the box with what details they could recall and later compared these drawings with the box. These drawings were then exhibited and discussed, after which each child made a final drawing and colored it with crayons. Fig. 106 shows the successive drawings of one child. Several other illustrations, especially of houses, furniture, etc., called

for vertical lines. These were therefore emphasized, and by the end of the third year all the children could draw on the board a vertical line which would stand the test of a plumb line, and they took pride in making objects which should be vertical stand

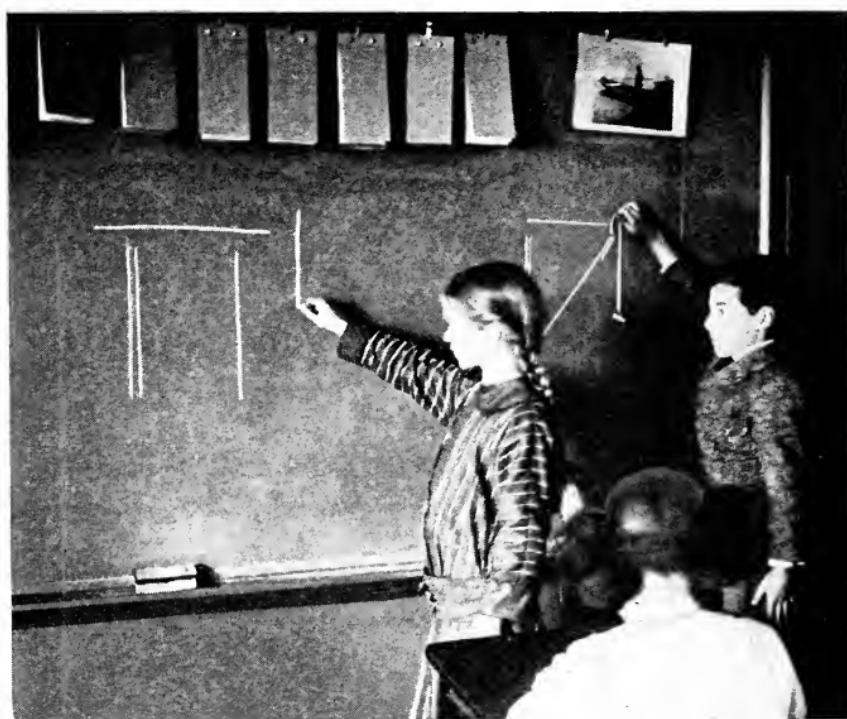


FIG. 107. CHILDREN DRAWING VERTICAL AND HORIZONTAL LINES

exactly upright. This interest extended beyond the drawing and included the straightening up of columns of figures in arithmetic and of pictures on the walls, and even attention to their own positions when sitting or standing. Fig. 107 shows children drawing vertical and horizontal lines on the board.

GENERAL CHARACTERISTICS OF APPEARANCE

GRADES IV-V

A new interest becomes strikingly evident in Grade IV—an interest in representing the actual appearance of objects. In earlier years the children were pretty generally satisfied if a drawing was recognizable. Now they compare it more carefully with the object and demand that the picture conform to a considerable degree to the appearance of the reality. In order to satisfy this demand of the growing perceptions, the drawing must be in good proportion and must represent the position of the object in space; how it is turned, tipped, etc. Supplementary drill on these matters at this time contributes to later freedom in drawing in much the same way as drill in the fundamental processes of arithmetic contributes to later facility in mathematics. A child in the seventh grade, hindered by inability to represent proportions easily, may be compared to a child in the same grade hindered in his advanced arithmetic by being unable to perform processes in addition easily. Examples of method in leading children to estimate and represent proportions correctly are here given.

In connection with science the children found it necessary to be able to sketch a jar. They studied it in the following order of steps. First they made

a drawing directly from the jar. This was laid aside, and on another sheet of paper they placed four strips of paper or splints, which should represent the top and bottom and two sides of the jar, and moved these about in order to inclose the space which best represented the proportions of the jar. On another piece of paper they then drew lightly the top of the jar, and from this sketched the two sides lightly, making them of indefinite length. They then placed a splint or a piece of paper to represent the base, and moved this up and down in order better to judge the proportions. When they had thus found experimentally the shape that seemed to them to represent most correctly the proportions of the jar, they sketched the outline of the objects and completed the drawing.

In connection with the manual training it became necessary to draw some of the tools which were used; for example, a saw. The steps here followed were slightly different, not because the object itself was different, but in order to give the children another method of approach. On the drawing paper the children indicated the length which they desired for the drawing. They then placed pieces of paper or splints which should represent the width and moved these back and forth until the space inclosed between the papers or splints and their previously noted indications of length seemed to them to represent the proportions of the saw. They then put

the papers or splints aside and placed the pencil where they thought the handle should come. They then drew the top line of the blade, laid the pencil on the paper, showing where they would draw the lower line, and then sketched it in. Upon this plan they completed the drawing.

In this work no use was made of the method of estimating proportions by holding the pencil at arms' length and using it as a measure of width and height. This method substitutes the confirmation of a mathematical estimate for the immediate perception of agreement or disagreement of the shape of the drawing with that of the object. Experience seems to prove that it is more difficult to teach elementary-school children to use pencil measurements in a way that is at all trustworthy, than to judge proportions as well without such measurements. Even when the children can make the measurements well these mechanical means hinder rather than promote ability in drawing.

In addition to representing pictorially the proportions of objects, certain lines of work called for diagrams and plans. For example, in preparation of the school gardens, in connection with natural science, it becomes necessary to draw the individual garden plots to scale. Lines of various lengths and slants were placed upon the board, and these questions were asked :

1. On line *A*, which represents the front and long side, complete free-hand the plan of a garden plot, the proportions of which are five feet long and three feet wide.
2. Divide this plot from front to back into three sections which are respectively two feet and one and one-half feet wide.

Such questions called for very definite visualization of relative proportions.

Diagrams called for by arithmetic and geometry give abundant opportunity for this kind of estimation of proportions. For example, on the line *A* as a base construct free-hand an equilateral triangle; on line *B*, an isosceles triangle, the altitude of which is three times the length of the base; etc. These diagrams are constructed on lines drawn on the blackboard or on paper.

Drawing groups of two or three objects is another excellent problem in relative proportions. Experiments seemed to prove that the method of "blocking in" the whole group in some general shape which touches the outside edges of each object as a spider's web might if spun from one to another of the extreme outer projections of the group, and then finding the relative space which each object occupies within this, is helpful to adults, but seldom becomes a working method for elementary-school children. They draw one object and then another until the group is completed. For example, in Grade VI, in connection with plant study, the children had occasion to

draw a geranium in a pot. If left to themselves, children almost always draw the pot so that its size is altogether too large for the plant. The children made a silhouette of the flowerpot in ink, and then showed with their fingers how large the plant should appear on the paper, and compared the space thus indicated with the size of the pot. After this

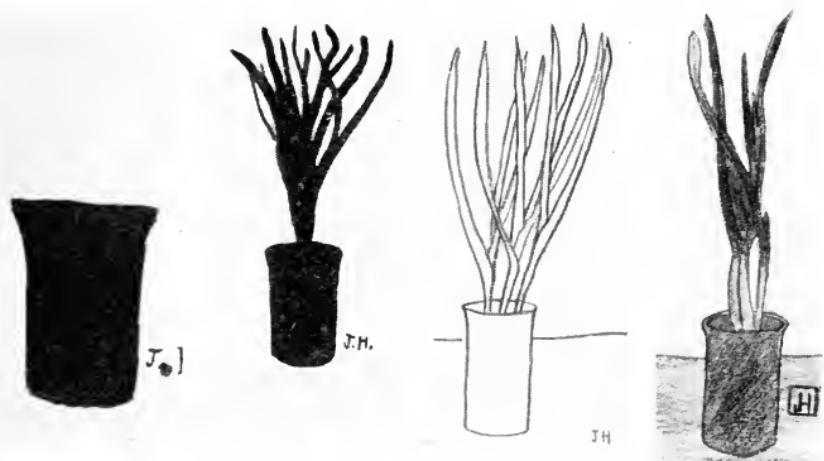


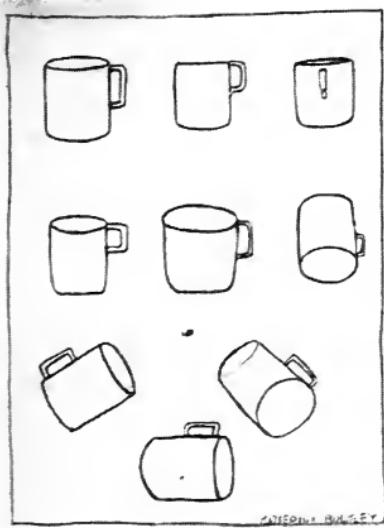
FIG. 108. A CHILD'S SUCCESSIVE STEPS IN DRAWING A PLANT

pause for comparison the relative size of the plant to the pot was fairly well represented. A number of drawings were then placed on exhibition, and the children decided which best represented the correct proportions. Fig. 108 shows these successive steps in drawing a plant. By such comparison as this the children learned more readily to sketch proportions correctly than by attempting to plan the whole form first and then subdividing into the

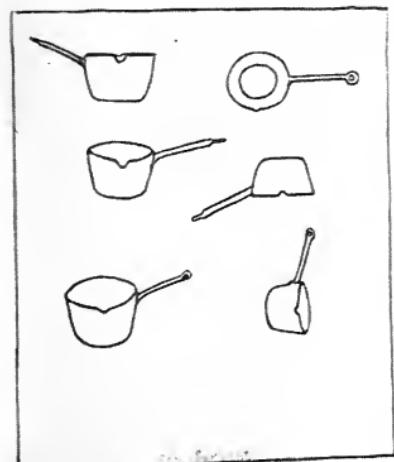
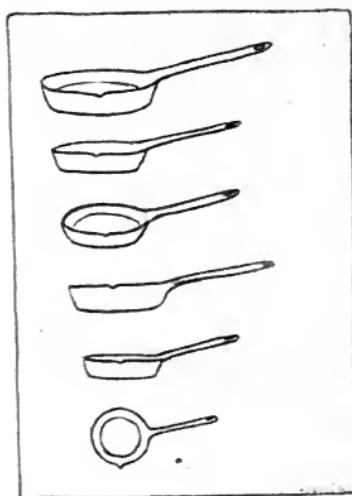
two areas of plant and flowerpot. It will generally be found that when the instructor, casting aside the traditions of the art school and the methods which the adult uses readily, will frankly accept the method natural to the children and will utilize its particular possibilities, good results will be speedily obtained.

A problem which should be mastered in Grade VI is that of representing constructed objects as they appear in different positions.

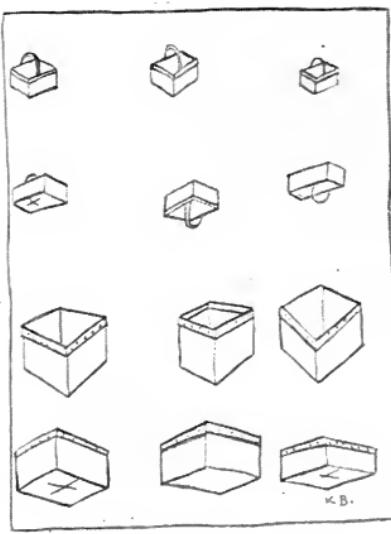
For example, in illustrating pioneer life the children wished to show utensils in use, but had difficulty in representing, for instance, a frying pan in any particular position. Each child drew as well as he could the frying pan as it would appear upon the stove. They then looked at two or three utensils of a shape similar to a frying pan, brought in from the domestic-science room and so placed that at least one could be seen by each child. They compared their own drawings with the appearance of the actual object, and improved these drawings as much as they could from the suggestions obtained from the object. They also collected pictures of utensils which furnished additional suggestions. They then made a sheet of smaller sketches in which they experimented in representing the frying pan in various positions. They discussed these, first, as to whether the drawing gave a correct idea of the position; and second, as to whether it looked



CAROLE BALLEY



CAROLE BALLEY



K.B.

FIG. 109. STUDIES MADE IN THE COURSE OF EXPERIMENTS TO FIND OUT HOW TO REPRESENT OBJECTS SEEN AT DIFFERENT LEVELS

distorted or not. They appeared to learn more at first from a number of small drawings which allowed them to experiment with several positions than from one large drawing which attempted to represent the object in only one position. They soon learned to make fairly well-constructed shapes for use in their illustrations. A similar problem was presented by the drawing of a basket. Fig. 109 shows sheets of drawings of these objects in different positions.

In representing dishes upon shelves it became necessary to understand the appearance of objects at different heights. Some of the children placed the tin cup used for holding water for water colors upon a pile of books on the desk and drew it as it appeared at that height. They then made successive drawings showing how it looked as one book at a time was removed and they could see farther and farther into it at each lower level. Others of the children reversed this process, placing the cup first on the desk and then on a pile of books built up by adding one book after each drawing. These two sets of drawings were compared and discussed, first, as to whether they satisfactorily represented the cups at different levels; and second, as to whether the cups appeared to be perfectly round; in other words, as to whether the edge appeared as a circle seen at an angle or whether it appeared to be bent and irregular (Fig. 110).

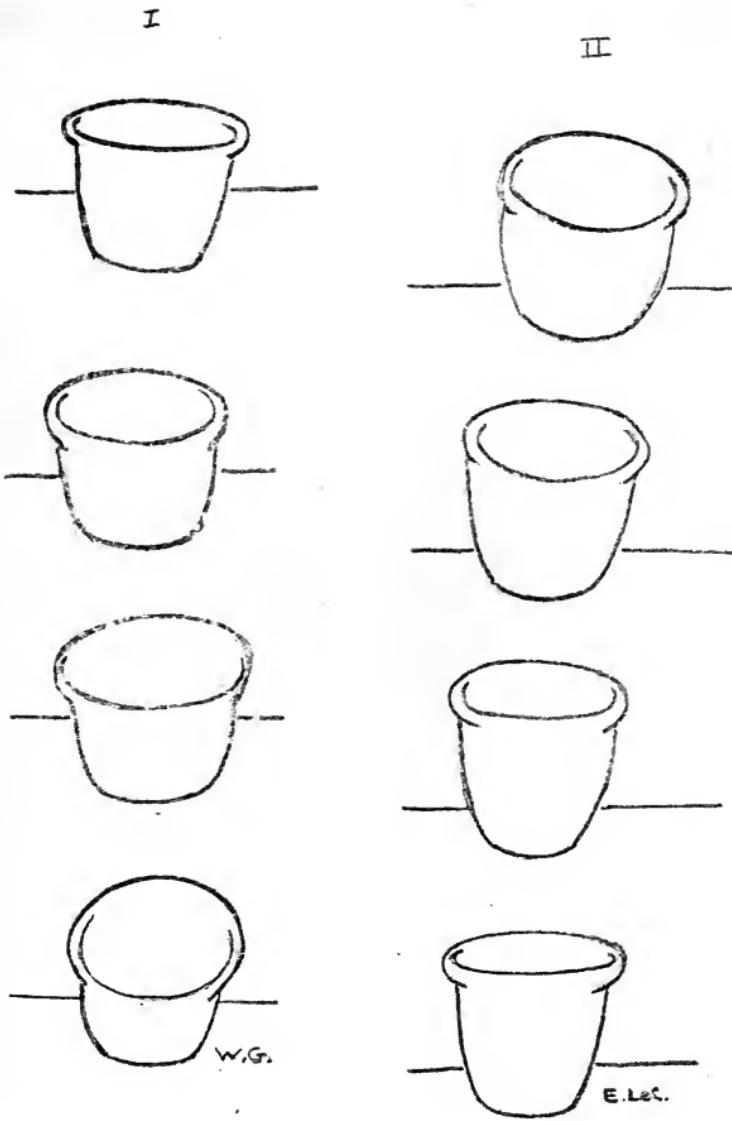


FIG. 110. STUDIES OF CUPS AT DIFFERENT LEVELS

(4)

Cups were then placed on different desks at various levels, and each child marked the drawing upon his or his neighbor's sheet of sketches which best represented the particular level of the cup at his desk. He then selected another drawing and tried to place the cup so it would be in the position represented. These two steps stimulated observation in two ways: first, in choosing the drawing which conformed to the appearance; and second, in making the appearance conform to the drawing.

These experiments enabled the children to sketch general effects of different positions sufficiently well to serve the purposes of their illustrations. The knowledge and appreciation gained provided an excellent foundation for the more detailed and elaborate study of rectilinear and curvilinear solidity which was taken up in the latter part of Grade VI and in Grade VII.

RECTILINEAR OBJECTS

GRADES VI-VII

If one examines sets of drawings of rectilinear objects, such as boxes, books, etc., made by children in the sixth and seventh years of school, he will find many which show such distortions as are indicated in Fig. 111. Two methods of correcting these are in common use. The one is to present a theory of

perspective which explains what direction the lines should take in order to avoid these distortions. The second is to direct the children to careful observation of the objects as compared with their drawings, in order to discover where the difference lies. Results

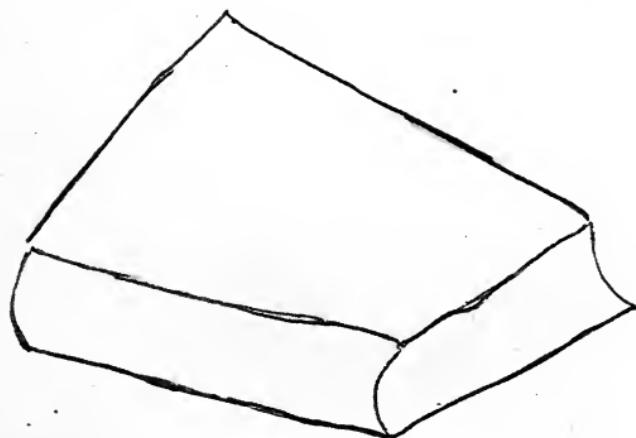


FIG. 111. A DISTORTION COMMON IN CHILDREN'S DRAWINGS OF FORESHORTENED SURFACES

justify us in concluding that neither of these methods has proved successful. Children appear to understand the theory of perspective and to be able to explain it and even to illustrate their explanations by means of diagrams. When it comes actually to changing their drawings by means of this theory they seem unable to make the application. The sight of the object puts out of mind the principles of the theory. Where good

drawing from objects has been attained in the course of this sort of teaching, it does not appear generally to be the result of it.

The second method, namely, a close comparison of the drawing with the object, fails apparently because when the child is comparing his drawing with the appearance of the object he is usually making a piecemeal comparison, and does not seem to be able to find exactly the fault with his production. He readily sees that his drawing does not look like the object, for instance, that the book in his drawing does not appear to lie as flat as the actual book, but he finds it difficult to know exactly how to change his drawing to give the appearance of the book. In order to do this he must have something besides a theory which appeals to his intellect, and an object which appeals to his eye. This necessary something, which neither of these means supplies, is a mental image so systematically and thoroughly developed that when he looks at his drawing it appears to be right or wrong as it conforms or fails to conform with this mental image.

The following steps describe in detail a plan followed in developing visual knowledge of a rectangular solid. The steps were presented in such a way as to offer at various stages definite tests of the child's progress. The illustrations for these steps (Figs. 111, 112, and 114-123) show the successive drawings of

four children, representing *A*, the best; *B*, somewhat above the average; *C*, somewhat below the average;

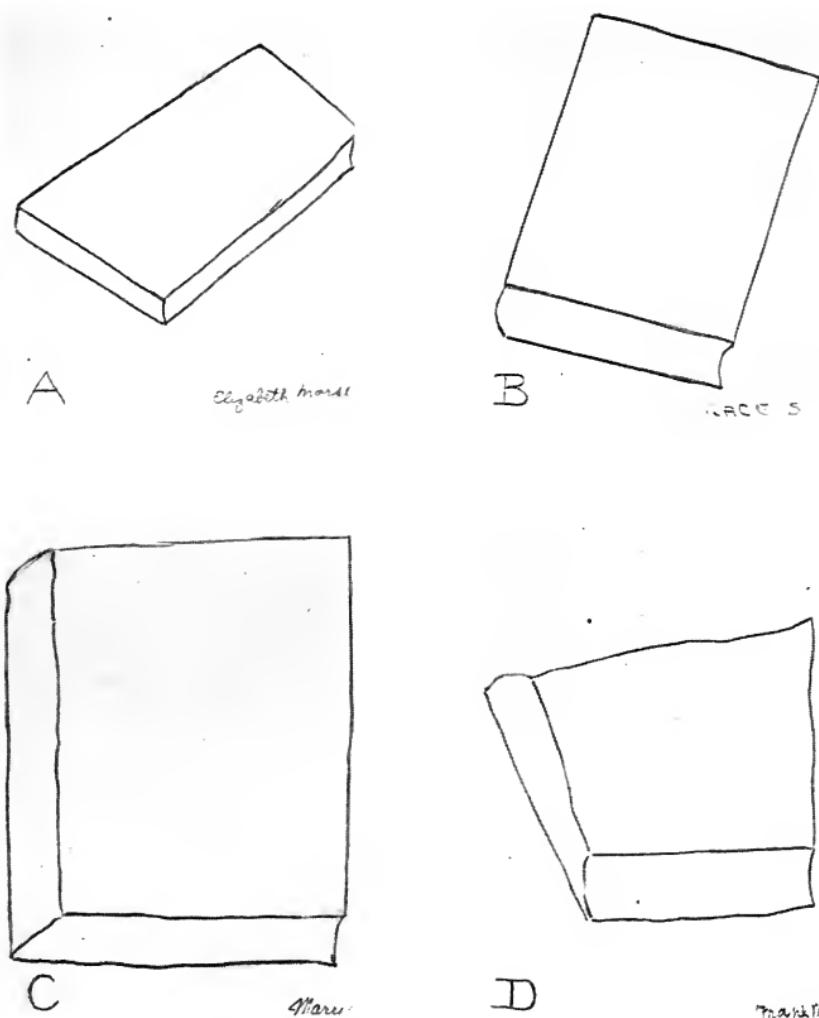


FIG. 112. FIRST DRAWINGS OF A BOOK FROM THE OBJECT

and *D*, the poorest in a class of thirty-five. When one of these children was absent, the work of another child of approximately the same degree of

ability has been substituted in the series. These substitutions are marked *S*.

1. The children were asked to draw, without any help from the instructor, a book which was placed on a desk near by (Fig. 112).

The instructor then held up two or three drawings of varying merit, which the children criticized in the light of these questions :

a. Does the book in this drawing appear to lie flat on the desk ?

b. Can you tell which lines should be changed in order to make the book look right ?

Each child then criticized his own drawing in answer to these two questions. The value of these steps was in showing what the child was able to do as a result of his own observation. The instructor then led the children to select those lines which appeared to determine the direction of all the others. They found that if the position of three lines of any rectangular solid could be determined, the direction of the others could be estimated from these. The instructor then placed upon the board several examples of these three key lines (see Fig. 113), and different children came to the board and completed the outline of the solid on the basis of these lines. The children then criticized these drawings from the point of view of whether they gave the effect of rectangular solidity or appeared to be distorted.

2. Hectographed copies of three key lines were given out to each child. They were filled out by the children, who experimented in order to make the lines which they added conform to the given lines in such a way as to represent an undistorted rectangular

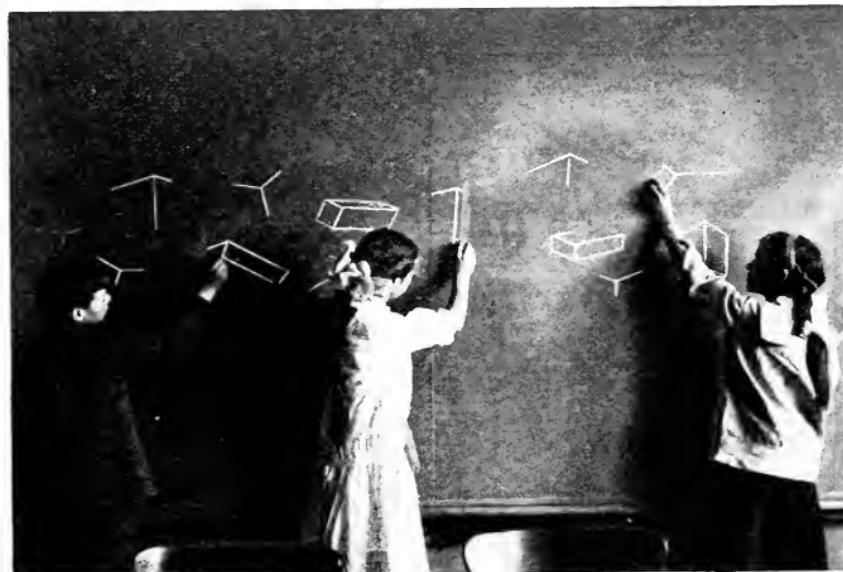
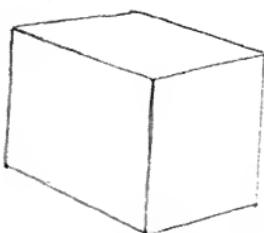


FIG. 113. CHILDREN COMPLETING SKETCHES OF SOLIDS ON BASIS OF THREE GIVEN LINES

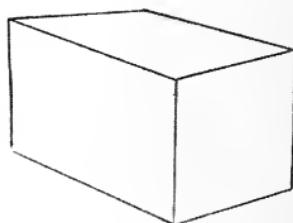
solid. While a large proportion of the children produced distorted drawings in their sketch from the object, only three out of thirty-five produced distorted drawings in completing a drawing on the basis of the three given lines. The sheets of the four children are shown in Fig. 114. The children used rulers in this step, because by moving the ruler, they could experiment with the effects of lines at various slants, and

thus determine more easily their right relationship.

After each child had made his drawing as nearly perfect as he was able, he exchanged drawings with



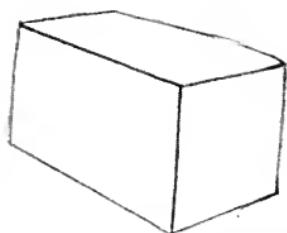
ELIZABETH M.



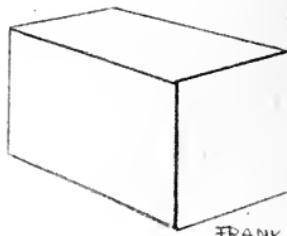
GRACE S.

A

B



MARY M.



FRANK W.

C

D

FIG. 114. DRAWINGS COMPLETED ON A BASIS OF THREE GIVEN LINES

his neighbor and gave what suggestions he could. This gave each child the helpful experience of judging drawings other than his own—an experience which is usually monopolized by the instructor.

3. The drawings of the previous lesson were again studied and discussed, in order to see if the children could further perfect them. Those which were still distorted were corrected by the children. Some children then went to the blackboard and sketched three key lines, upon the basis of which they completed a

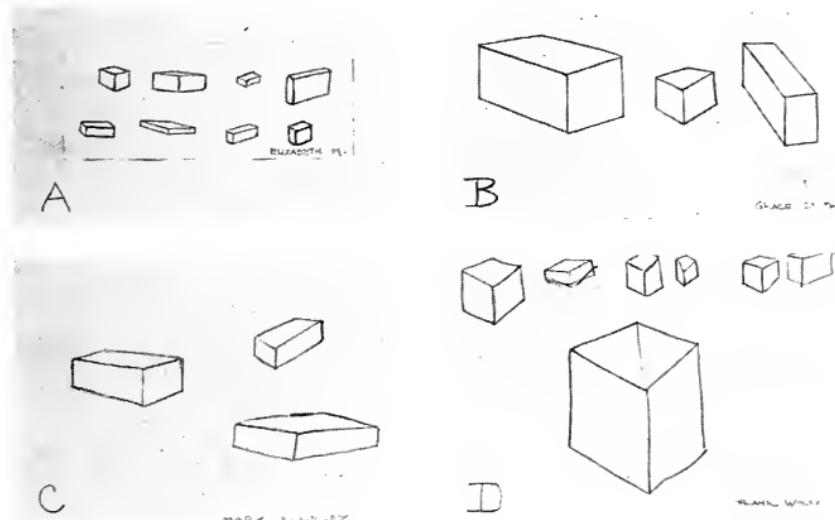


FIG. 115. DRAWINGS COMPLETED ON KEY LINES AT VARIOUS ANGLES

box, while others made pages of quick sketches at their seats. By this means the relation of the structural lines in a rectangular solid was thoroughly fixed in mind (Fig. 115).

4. The children now made a drawing of the same book which had served as a model at first, placing it in the same position as before. This time the plan of structural lines which they had worked out in the intermediate steps exerted an evident influence upon

their drawings, as a result of which most of the distortions noted in Fig. 112 were not repeated. This time they were told that the drawing of the book must appear to lie flat, as did the book itself. The drawings made at first (Fig. 112) were distributed, and each child compared his latest drawing with them. The difference between the two was often so great that the children

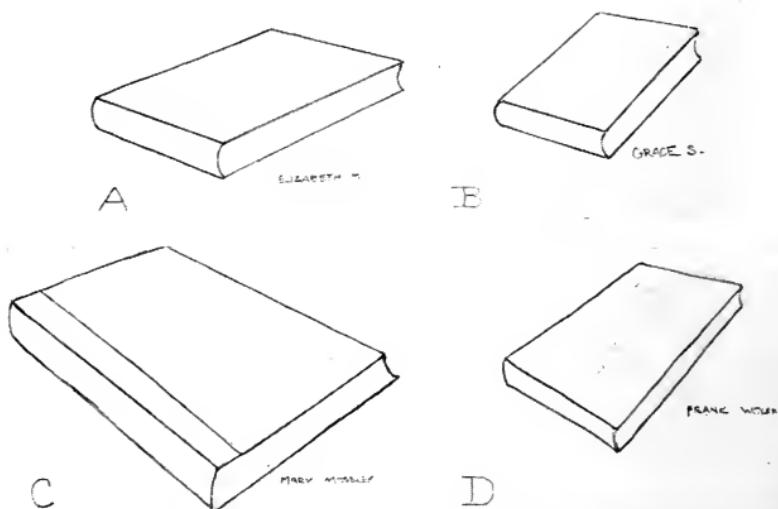


FIG. 116. SECOND DRAWINGS OF BOOK FROM THE OBJECT

were highly amused at their first drawings. It is important to note that the higher standard of attainment was due more to developed knowledge of rectangular structure than to any increase of power resulting from direct observation of the object. Fig. 116 shows these second drawings of the book.

5. The children now experimented with the effect produced by changing the angle of the key lines.

The instructor first placed upon the board instances of the key lines at varying angles, and different children went to the board and filled out the figure by adding the necessary lines. They then discussed the effect of wide angles as compared with narrow ones. Then followed a discussion of the effect of wide and

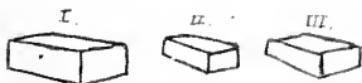


ELIZABETH MORSE



GRACE SMITH

A



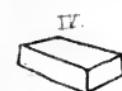
MARY MAGEEY

B

Frank Wolfe Feb 20 1914



C



D



FIG. 117. DRAWINGS ILLUSTRATING WRITTEN PAPERS ON EFFECT OF KEY LINES AT VARIOUS ANGLES

narrow angles in changing the apparent position of the book, and conclusions were drawn as to just what changes made a book appear to lie more or less flat. The following questions were placed upon the board :

- a. How much change in angle of the key lines can you have and still represent something like a square box ?
- b. What is the effect of increasing this angle ?
- c. What is the effect of decreasing this angle ?

These questions were answered on a sheet of drawing paper by written statements illustrated by drawings. Examples of these drawings are shown in Fig. 117.

6. A test was given in which the children spent five minutes in making from imagination a number of quick sketches of boxes at various angles. They first sketched the key lines at different angles and then added lines necessary to complete the effect consistently. Each child placed a book on the desk in front of him. He was then asked to look at the book and select from among the sketches which he had just made the one which was most like the book or the key lines of which were most like the key lines of the book. Each then made a sketch of the book he had been observing and tried to make the angle of divergence in his drawing as nearly as possible like the angle of the book.

7. The children now made a drawing from an actual book, in order to show the exact position and proportions, which they were now able to represent with some degree of accuracy because of their previous practice, and to show also its particular characteristics of binding, etc. The method of procedure in this lesson was such as to review the principles of the previous lessons. For example, the children first sketched the key lines to show the position and proportion before completing the

book (Fig. 118). This was followed with a drawing of a group of books, one of which was lying open. This drawing involved the previous principles, applied

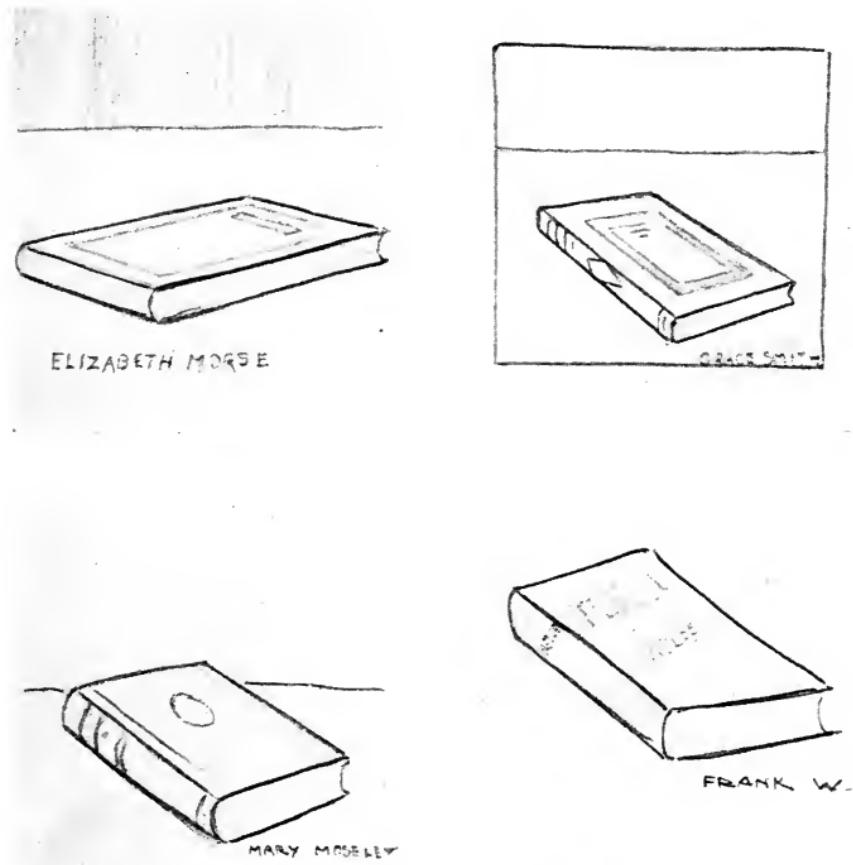


FIG. 118. THIRD DRAWINGS OF BOOK FROM THE OBJECT

to a more complicated form (Fig. 119). At this point the children were shown examples of the artistic use of the line and were given some practice in drawing the sort of line which best brought out the desired

effect. Reproductions of excellent pencil drawings of books (for example, such drawings as those by James Hall in the Applied Arts Drawing Books) were passed around, in order that the children might obtain from them suggestions for better quality of line and methods of handling the pencil, and a little time was taken for pencil practice.

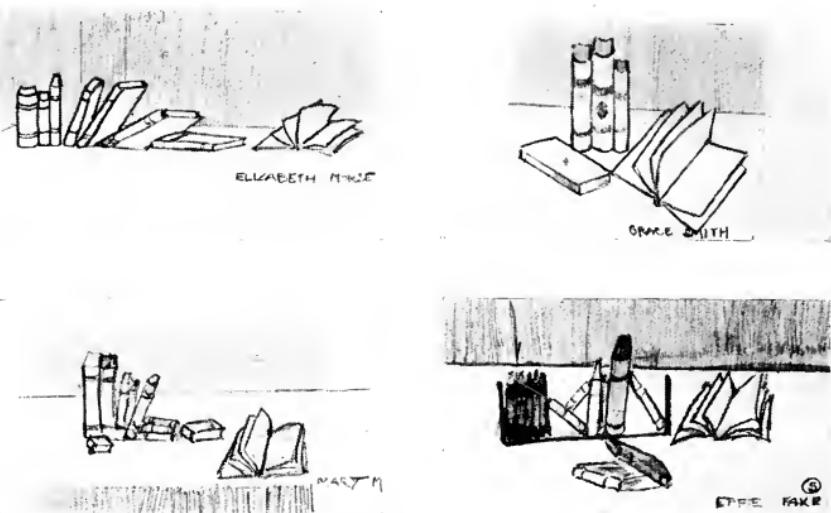


FIG. 119. DRAWINGS OF GROUPS OF BOOKS

8. A book was placed above the level of the eye in sight of all the children, and they were asked to represent it in this position with no help or suggestion from the instructor. These drawings were then placed in sight of all the children and studied to see which of them gave the appearance of the book above the eye. The children were asked what direction the key lines must take in order to

make the object appear as if it were above the level of the eye. A large proportion stated at once that the angle was merely the reverse of the angle which gave the effect of the object as below the level of the eye. The children then practiced with different angles of the key lines of objects above the level of the eye, to see the effect which resulted from modifying the angle, and added the lines necessary to represent the form of a house. They practiced drawing the shapes of houses as they would appear both above and below the level of the eye. They were taught how to find the perspective center of the end of the house in order to represent the gable correctly. This proved to be a point of very great interest to the children. The lines they had now learned gave them the clue for drawing blocks of houses and for modifying the simple house shape into various forms by the addition of ells, piazzas, etc.

9. The following problem was written on the board, and the children worked from the specifications given :

Draw a bird house as it would appear fifteen feet away, on a pole nine feet high, with a gable roof the eaves of which hang over the sides. The door is in the middle of the gable end. There is a shelf three inches wide extending around the base. The house is so placed that you can see the end and one side equally. Draw it first as it would appear when you look at it from the ground; second, as it would appear when you look down on it from a second-story window.

Fig. 120 shows some of the resulting drawings.

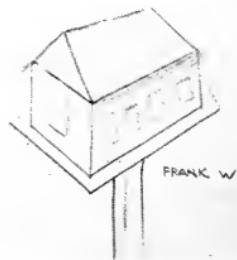
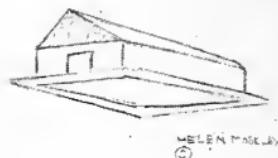
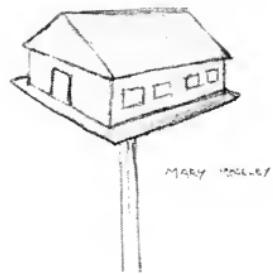
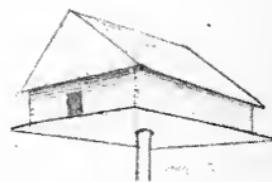
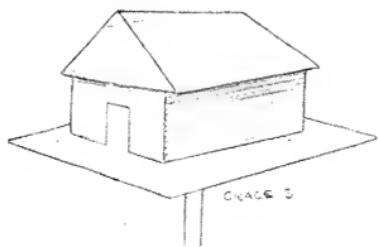
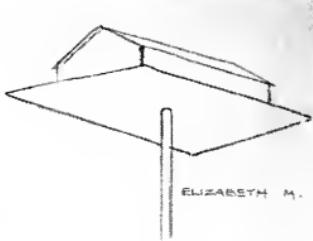
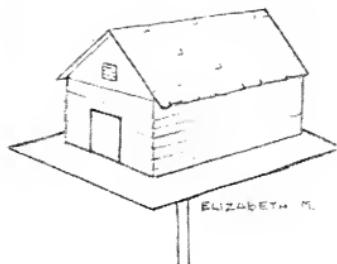


FIG. 120. BIRD HOUSE IN DIFFERENT POSITIONS DRAWN FROM SPECIFICATIONS

10. So far the problems have dealt with objects either wholly above or wholly below the eye of the spectator. This problem was planned to lead the children to apply the knowledge they had gained from drawing objects in these two positions to an object so large that it extended both above and below the level of the eye on given key lines. They

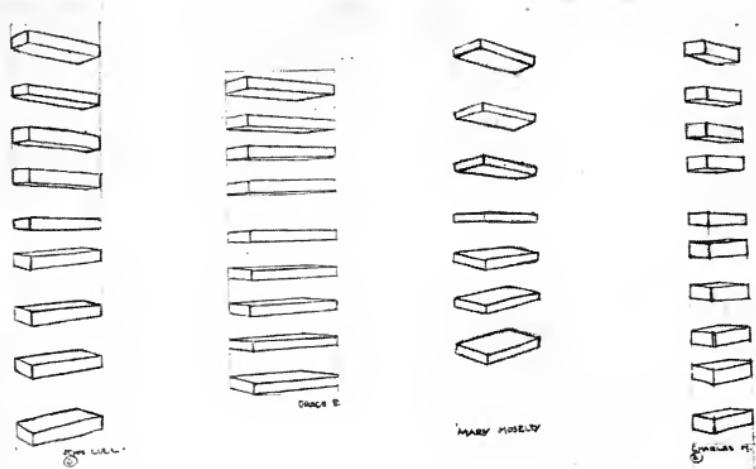


FIG. 121. EXPERIMENTS IN REPRESENTING INTERVALS BETWEEN
Two Given Levels

were to make a rectangular box which was considerably above the level of the eye, and another at some distance below the level of the eye but directly under the first. They were then to experiment in filling in the intervening space with other boxes, so that the final sketch would represent a single pile of rectangular boxes, of which the first two sketches formed the highest and lowest. From this

they discovered the gradual change of angle which takes place as the position of the object passes from above the level of the eye through various stages to a position below (Fig. 121).

11. Pictures of buildings selected to show lines at various levels above and below the eye were then

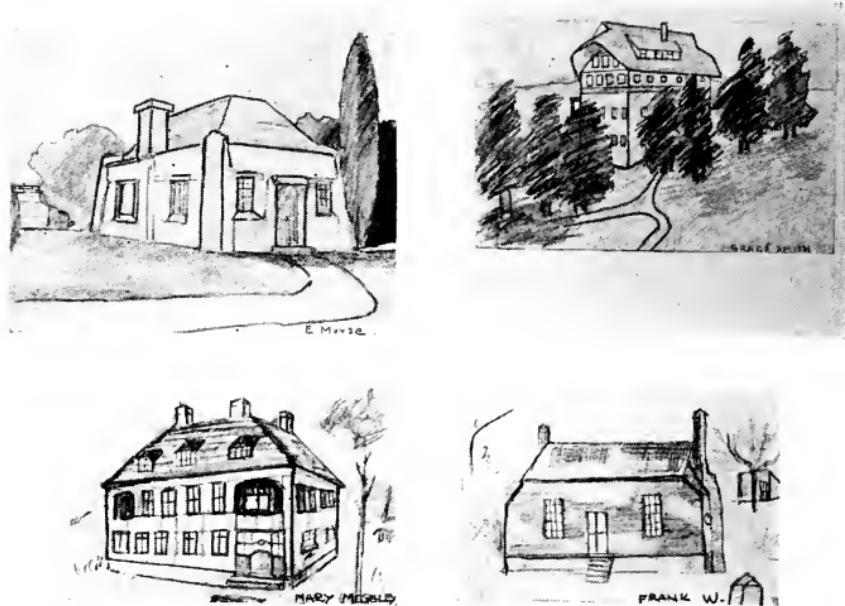


FIG. 122. DRAWINGS SHOWING PERSPECTIVE OF BUILDINGS

given out. The children examined these to see if they could find in them any suggestions regarding the problem with which they had experimented in the previous lesson, or any corroboration of the solution which they had worked out. They sketched the key lines of these buildings, and then each completed a drawing of a building (Fig. 122).

The children had a new stimulus for their drawing of buildings and for their experimentation with perspective effects, after they had examined photographs of buildings. These photographs proved that the slants of those lines which in the real building were horizontal did actually produce the appearances of height and distance.

12. The children then went outdoors and studied the buildings on the school grounds, to see if they could represent the proportions and apparent heights by drawing the angles of the key lines. On these each completed his drawing of a building. Fig. 123

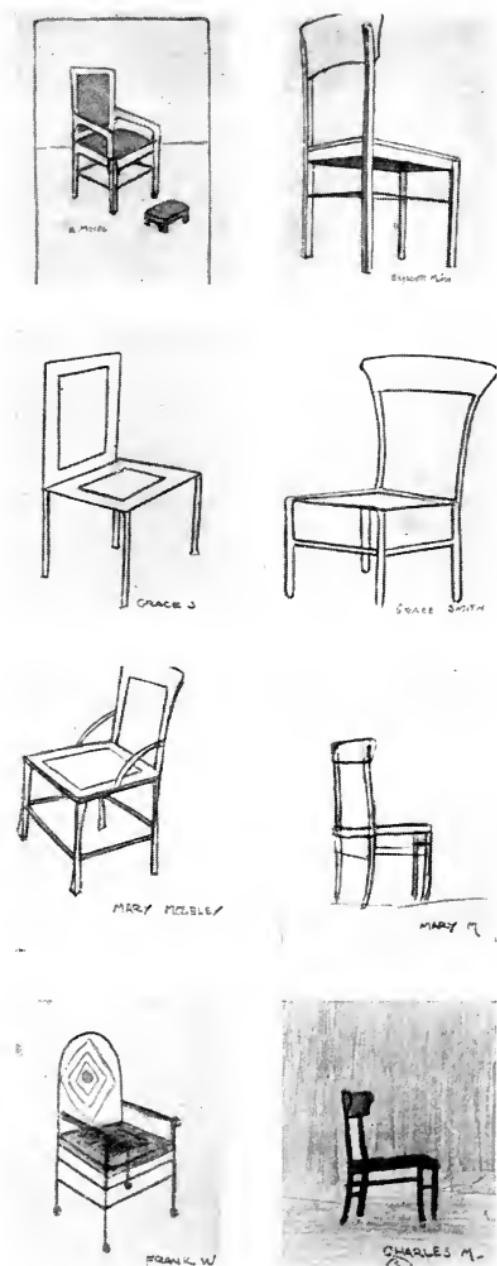


FIG. 123. DRAWINGS OF CHAIRS FROM MEMORY AND FROM THE OBJECT

shows drawings of chairs made by these children in connection with the study of this topic. The column at the left consists of drawings from memory, and the column at the right, of drawings from the actual

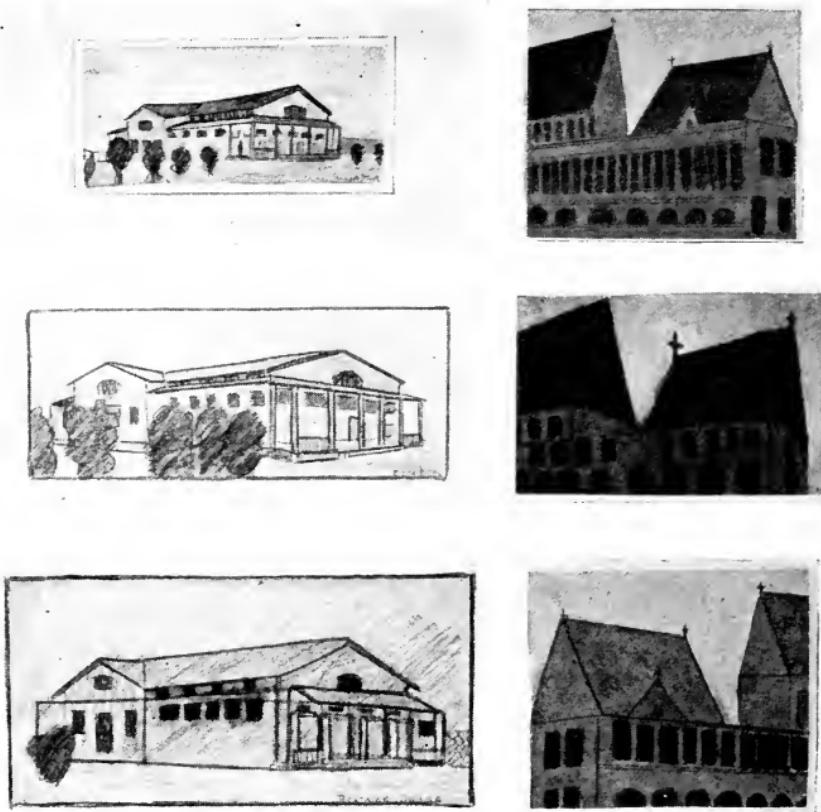


FIG. 124. DRAWINGS FROM BUILDINGS ON THE SCHOOL GROUNDS

chair. Fig. 124 shows drawings from buildings on the school grounds. Fig. 125 shows groups of books worked out in three values of gray. These formed the closing problems for this same sequence of lessons in another seventh grade.

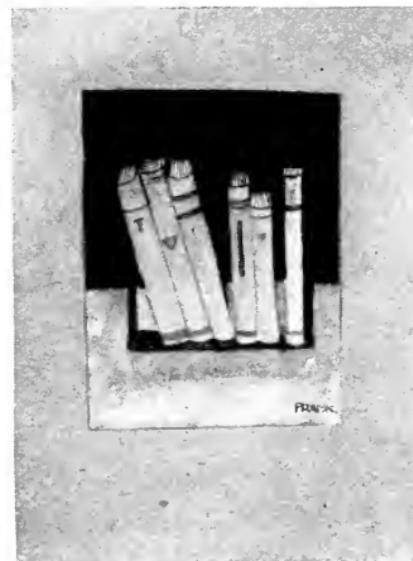
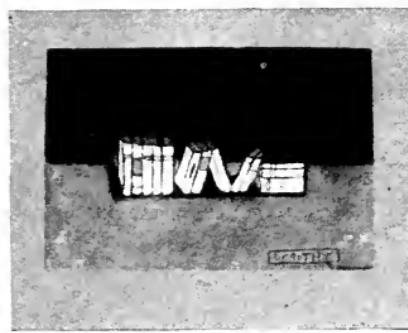
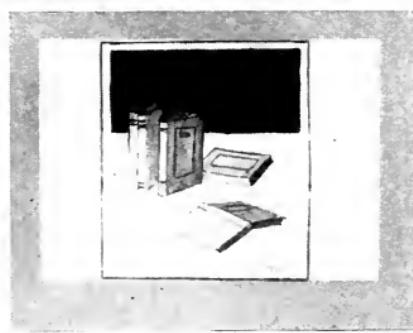
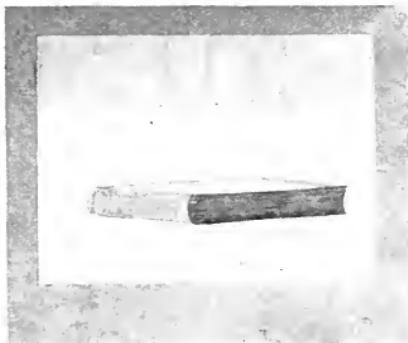
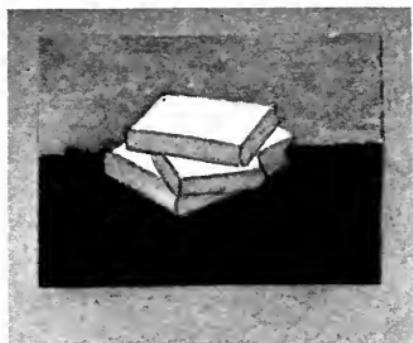


FIG. 125. GROUPS OF BOOKS DRAWN IN THREE VALUES

CURVILINEAR OBJECTS

The following steps present in detail the plan followed in developing a knowledge of curvilinear solidity. The principle followed here was the same as that observed in studying rectangular solidity; namely, that the appeal was made directly to the child's perception of the object, and his drawing was judged in the light of this perception rather than by trying to make the drawing conform to a set of formulated principles. Fig. 126 illustrates the steps by the drawings of one of the best pupils.

1. The first object selected as presenting a simple form of curvilinear solidity was a bowl. The children, without any previous instruction, first made a drawing of the bowl. Ten minutes was allowed for these drawings, and they were kept for comparison with later work (Fig. 126, A). The children studied these drawings and discussed the appearance of the mouth of the bowl. The chief point considered was whether the edge appeared to be the picture of a circle in that position or whether it seemed to be distorted.

2. The children soon saw the necessity of being able to draw the shape of an ellipse, which represents a foreshortened circle. Some time was then devoted to practice in drawing this shape. As the children progressed they gained an appreciation of the regular

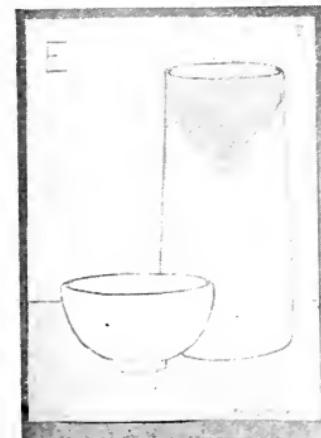
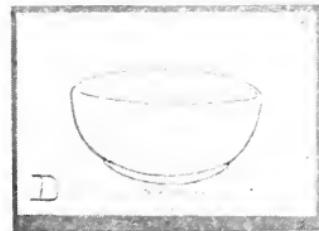
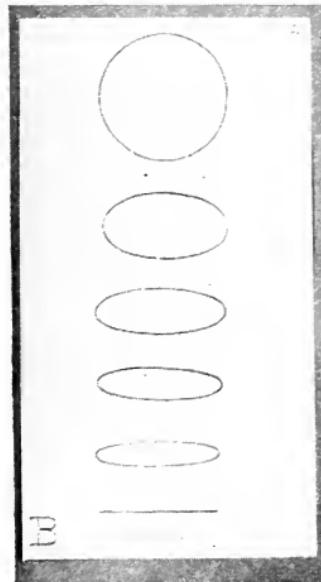
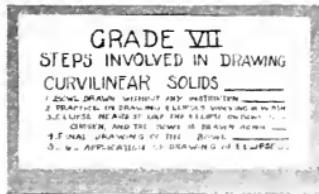
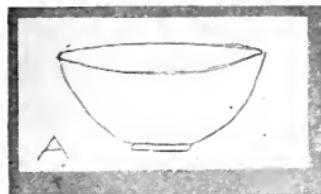


FIG. 126. STEPS FOLLOWED IN LEARNING TO DRAW A BOWL

variation in the curve and the beauty of its sweep. Considerable time was given to rapid, free drawing of the ellipse, and also to careful correction of one or two, in order to make them as good as possible.

3. The children continued their study of the ellipse. The work of the previous lesson was placed where all could see, and they discussed the ellipses shown. They then practiced on paper and at the blackboard in the drawing of ellipses of varying proportions, beginning with a circle and gradually decreasing the width until the form became so narrow as to approach a straight line (Fig. 126, *B*). Each child then selected the ellipse which seemed to him to represent best the appearance of the mouth of the bowl as he saw it, and made a careful drawing of a single large ellipse of these proportions (Fig. 126, *C*).

4. The children made a second drawing of the bowl under the same conditions which obtained when the first drawing was made. Each then compared his second drawing with his first (Fig. 126, *D*). The drawings were then placed where all could see, and the children discussed which was the best representation of a circle viewed at an angle. They talked over the appearance of the circle in various positions. They then made from imagination several sketches of bowls, for the sake of experimenting with the different effects produced by varying the curvature of the ellipse. The children then discussed how the

bowl would appear if it were above the level of the eye, where they could not see into it, and made experimental sketches to see if they could show the appearance of the top and also the bottom of the bowl, as seen above the level of the eye. The children talked over the effects produced by these different sketches and drew conclusions as to the results produced by changing the curvature of the ellipse.

5. This step was devoted to practice, in order to make drawings of better technical quality. Reproductions of good pencil drawings were given to the children, and they studied them to see how the edge of a bowl was drawn so as to represent its thickness and how the pencil strokes showed the shape of the bowl and the characteristics of its structure. The children copied several drawings of objects, in order to make a more intimate study of the quality of line used by the skillful draftsman. They then made drawings of curvilinear objects (such as the teapot, cup and saucer, flowerpot, etc.), adding to their knowledge of how to represent different positions the technical suggestions gained from the study of excellent drawings (Fig. 126, *E*).

As a final sheet the children made a careful drawing of a group of curvilinear objects. These were corrected and worked over until they were acceptable to the instructor. Part of the correction was carried on by having the children exchange drawings and give

suggestions on each other's work. After the drawings were acceptable, a tracing was made in order that the final outline might be transferred to a fresh



FIG. 127. DRAWINGS SHOWING AVERAGE CLASS WORK

piece of paper. The children studied good decorative sketches of objects showing three values of light and dark. They then made small experimental sketches of their own groups of objects, trying the effect of three values of light and dark. They chose colors

which they thought would look well in representing their objects. Not more than three colors were allowed. They mixed these colors so as to give three values and painted their groups with these three tones (Fig. 126, *F*). By these steps the majority of the children in the class learned how to represent correctly cylindrical and hemispherical shapes, so that their roundness did not appear to be distorted. They also learned what kinds of lines were used by good draftsmen in representing these effects, and how much of the effect of a good composition in light and dark could be obtained by translating the complex lights and darks of nature into three flat tones. A group of average drawings by other members of the class is shown in Fig. 127.

CHAPTER IV

INTERESTS AND STANDARDS OF ATTAINMENT

The classification of interests and of standards of attainment here given has been made largely from observation of the sort of drawings which children preferred to make at different stages, the questions they asked indicating the kinds of information they desired, and also the degree of skill which could be economically attained and which was sufficient to satisfy their needs for expression in any given case.

INTERESTS IN DRAWING

The one great interest underlying all drawing from the first through the seventh grade is in supplementing what can be told by words with another interpretation of impressions; namely, the unique way afforded by drawing, that is, by expressing the idea in terms directly suggested by the object itself. The more specific and incidental interests are given with the work of each grade.

GRADE I

1. The greatest interest in drawing displayed among first-grade children is the narrative or story-telling interest. There is an eagerness to tell the

story through graphic symbols, the crudeness of which causes the children no dissatisfaction. The interest consists mainly in giving some sort of visible expression to ideas, and not in the artistic excellence of the results.

2. In this grade an interest in the appreciation of simple orderly and rhythmic arrangements of line and form becomes apparent.

GRADE II

1. In the second grade the predominating interest is still narrative. There is more of a tendency here than in Grade I to question the likeness of symbols to the object represented in order to tell the story more adequately.

2. The interest in representing more definitely particular objects and effects is increased during this year. For example, in making an illustration for some poem or story the narrative interest is sometimes forgotten because of an absorbing interest in drawing in detail one of the objects in the picture. The wall paper, or a window, or any other feature of the illustration will often be worked upon to such an extent that it develops into the most prominent part of the picture, and the story to be told becomes incidental.

3. There is an increased interest in good arrangement of line and form.

GRADE III

1. The interest here is still largely narrative, but the children of their own accord devote much more attention to making the drawing conform to the actual appearance of the object.

2. A more definite interest arises in representing the characteristic details of objects and different effects of appearance. For example, there is pleasure in showing the characteristics of different birds of the same family, as the eagle, the hawk, etc.; or geographical landscapes involving different types of mountains or trees.

3. An interest in representing certain geometric relations appears in this grade; that is, vertical, horizontal, and parallel.

4. Considerable originality is shown in choosing orderly and rhythmic arrangements of lines and spaces and in inventing decorative units.

GRADE IV

In the fourth grade the interest in the correctness of representation is such that the children are no longer satisfied with their crude symbols. In other words, satisfaction is no longer found merely in the act of expression, however crude the symbols, but demands better results, even if to obtain these the rapidity of expression is checked. The interest

has swung from the mere activity of expression to the quality of the result that is to be secured. It has been found, however, that in fourth grades, where the children have accumulated a graphic vocabulary during the previous years, and have thus entered the grade with the ability to represent a certain number of forms with a fair degree of likeness to the object, the interest in telling the story through drawing has not diminished. The attention to the quality of results does not check the narrative interest, provided the child has confidence in his skill to represent satisfactorily the necessary forms.

Two interests, which contribute each to the other, develop along with the story-telling impulse. The first is in securing more exact and detailed representation of objects and effects of appearance. The second is an interest in conventions; that is, symbols used in a decorative way, such as would be worked out for materials which require a highly conventionalized design, as squared paper, weaving, etc.

These two interests are necessary, one to the other. Art training is one-sided if either is emphasized to the neglect of the other.

The specific ways in which these interests appear in this grade are as follows:

1. In more detailed study of characteristics.
2. In representing the appearance of objects in different positions.

3. In representing proportions and spatial relations correctly.
4. In constructive and diagrammatic drawing of a simple sort.
5. In conventionalization of familiar forms.
6. In pleasing relations of lines and spaces.
7. In a new style of technique, made possible through the use of water colors for the first time and in the suggestions which come from studying pictures to see how others have obtained effects.

The interest in obtaining particular effects of foreshortening and appearance in different positions is increased during this year. This results in experimentation in the drawing of objects and simple groups of objects, in order to learn how to produce these effects. Relative proportions and spatial relations also become matters of interest. The use of water color increases the pleasure in representation.

The interest in the decorative form as a single unit is extended to the translating of facts of form into decorative and symbolic conventions, where the influence of line and pattern is added to the expressiveness of the content.

There is an increased appreciation of geometric forms as absolute standards of spatial relations (for example, vertical, horizontal, etc.), and in patterns and plans as exact means of forecasting results in material and of describing forms and positions.

GRADE V

In Grade V the dominating interests are the same as those found in the preceding year, except for the fact that they become wider and more inclusive as the general experience of the children is increased.

The interest in the exact representation of objects, and in the decorative interpretations which almost always grow out of the power to draw forms well, expresses itself in the development of the ability to gather data and to learn methods by which impressions and ideas may be well expressed. For example, (1) individual topics are worked up with more personal initiative, each child gathering the material which will enable him to make the best interpretation of the subject in which he is especially interested. An interest in sketchbooks arises here which promotes the important use of drawing as a means of investigating and recording facts. (2) Class themes in connection with the various school subjects serve as centers of interest in collecting pictorial material.

GRADE VI

In the sixth grade the increasing power of perception and appreciation awakens interest in aspects and methods which are somewhat new. There is a great willingness to work for a considerable length of time and with a sustained purpose in order to secure the

exact result desired. Topics can be undertaken where much planning of intermediate steps and preparation of material is necessary. There is a desire to undertake something worth while, or definitely connected with social activities. A decided interest is shown in exercising constructive imagination or inventive ability. There is interest in representing both the structure and beauty of form.

In this grade there comes for the first time a very strong demand for more definite knowledge of how to represent rectilinear and curvilinear solids, or what is commonly termed perspective drawing of objects. While the interest in narrative drawing is as strong as in the lower grades, yet a great deal of attention is given to the exact drawing of each detail of composition.

The interest in adapting the objects which they have drawn to decorative uses gives the children an increased enjoyment and appreciation of the good examples of design and composition which are used as reference material. It also results in discriminating criticism of the appropriateness and beauty of design in their immediate surroundings, and the children frequently report upon the good and bad points of the wall paper, rugs, book covers, and furniture found at home. One wall-paper dealer reported that parents were bringing their children to help them in the selection of good designs.

GRADE VII

In the seventh grade the general nature of the interests continues along the same lines as in the previous year. The willingness to work for a great length of time in order to obtain a truthful representation of facts for purposes of description or illustration is increased. There is a still greater interest in form-building for purposes of construction or invention. There is a growing desire to give a decorative interpretation to all the drawings, and a keener appreciation for beauty of form and color is displayed. In this grade usually for the first time a genuine enjoyment of fine curves and graceful lines becomes evident.

Considerable interest in the more formal side of art is apparent. The children are eager to work out a little of the theory of color and design in a very simple way.

STANDARDS OF ATTAINMENT

GRADE I

I. An established habit of using drawing as a means of narrative expression, in which the drawings are allowed to remain largely pictographic in character and serve to suggest ideas and to sustain the narrative rather than to represent correctly any facts of appearance that do not contribute directly to the movement of the story.

II. A representation of salient characteristics of selected objects sufficiently well drawn to make the drawing readily recognizable. These objects are learned so that they can be drawn from memory.

1. *Human figure.* Ability to indicate the human figure in any position, using merely the action lines. These may be filled out when desired.

2. *Animals and birds.* Ability to draw readily from memory five or six animal forms and four or five bird forms with a fair degree of correctness.

3. *Plants.* Representation of plants growing in the room. Drawing of the bulb in different stages of its growth. Drawing of several spring and fall flowers, showing general effect with crayons. Drawing of characteristic shapes of three or four trees.

4. *Constructed forms.* Drawings and cuttings of certain shapes of objects used in the illustration of subject matter which will serve in a later grade as a basis for other forms; for example, canoe shape, wigwam, Indian weapons, house, barn, etc.

5. *Landscape.* Representation in a simple way of the landscape necessary for the setting of the stories used for illustration — trees, sky, land, water.

III. An appreciation of simple decorative arrangement.

1. Ability to arrange one or two units of design within a given area so that the effect of the spaces into which the area is thus divided shall be pleasing.

2. Ability to mount work so that the margins are pleasing.

3. A feeling for rhythm in a border. The making of rhythmic borders by repeating a unit free-hand to count.

4. Simple arrangement of elements in a composition, in order to tell the story adequately (ways of emphasizing the center of interest).

5. Ability to print and cut the simplest straight-lined letters.

IV. Free use of color in all work.

1. Recognition of the six chief color sensations — red, orange, yellow, green, blue, violet.

2. Pleasing application of a single spot of bright color on white, black, or gray.

GRADE II

I. Narrative drawing, in the range and adequacy of which improvement is evident from the contribution made by the systematic study of selected forms.

II. A definite list of animal and bird forms, and also a few objects related to the themes selected for study, which all the children can draw at the board or on paper freely from memory.

1. *Human figure.* Action lines, with ability to show bend of elbows and knees. These action lines should be filled out so as to give some idea of the proportions of the figure.

2. *Animal and bird forms.* Drawing of the same animals and birds used in previous year, but with more nearly the correct shape. Several new animal and bird forms are learned.

3. *Plants.* Ability to make sketches that can be recognized of the common spring and fall flowers. More elaborate drawing of the trees learned previously and an addition of several new tree shapes. Drawing of many kinds of bulbs before planting, then drawing of the plants after they bloom.

4. *Constructed forms.* The forms already learned drawn with more detail, and other forms added to these; as, the Bedouin tent, stone kettle, weapons of the cave man, etc.

5. *Landscape.* Continued use of the landscapes studied in Grade I, with other types added; for example, the desert landscape.

III. An increased appreciation of decorative arrangement.

1. The invention of decorative units, and the use of the shapes of the common objects around the room as units in borders. Border lines used.

2. Work mounted with increased attention to pleasing relation of margins and spaces.

3. Increased attention to good composition in the illustrations for other school work.

4. Ability to print all the letters of the alphabet, using straight-lined letters.

IV. Free use of color in all illustration and design. Recognition of different tones of one color; for example, reds which differ from the red of a given sample. Ability to match color exactly by samples.

Color in design — use of light and dark values of one color.

GRADE III

I. Narrative drawing increasingly expressive

1. In the characteristics of forms used.

2. In the effects of distance, different positions, actions, elaborations of detail, etc. Children should now be able to gather from pictures and descriptions considerable material for use in their illustration of given themes.

II. Ability

1. To draw the human figure from imagination so as to indicate any attitude or action, even though the drawing is crude.

2. To draw a list of bird and animal forms from memory so as to show not only the general characteristics of form but particular details, such as the shape of bill, head, legs, the characteristic markings, etc., which distinguish one species from another.

3. To draw several plants with much more correctness of proportions and growth than was attainable in the previous year; also parts of plants to show some of the more important details of form, for example, leaves and flowers.

4. To represent objects involving right angles and straight lines with the proper relations of vertical, horizontal, and parallel; to sketch these relations in long lines drawn at arm's length on the board, and also on paper.

5. To represent simply a few constructed objects, such as houses, boats, trains, utensils, etc.

6. To represent the typical landscape of different countries — Switzerland, Norway, Japan, Holland. This involves mountain and tree forms.

III. Increased appreciation of, and ability to use, rhythmic arrangement and pleasing space relations.

1. Ability to make well-spaced borders and surface patterns by free-hand repetition of units.

2. Ability to adapt combinations of lines or the shapes of objects for use in design, as in the previous grade, but in a better decorative style. A certain individuality of style is acquired through repeating a familiar unit until, as in handwriting, the lines acquire a consistency of character.

3. Ability to conventionalize familiar forms on cross-sectioned paper.

4. Ability to print all letters of the alphabet readily, using single-line letters, making letters of varying sizes, and adapting a given word to fill well any specified space.

IV. Use of color in all work where it is appropriate for more adequate description or for decoration.

1. Ability to make with crayons an evenly graded series of hues from one color to another, as from yellow to green, or to arrange given samples so as to make a graded series of hues.
2. Ability to match with samples color tones which are grayed or otherwise less pronounced than the standard colors.
3. Enough skill in the use of crayons to produce the effects needed in representing different types of landscape in illustrations of themes.
4. Use of color in connection with design: ability to make pleasing combinations of mixed colors—blue-greens, yellow-greens, etc.—with black and white.

GRADE IV

- I. Increased ability to gather from textbooks and pictures material for illustrating a given theme.
- II. Ability to draw with considerable detail, to model in the round, to represent in different positions, and to sketch rapidly with expressive general effect seven or eight birds and animals; to represent leaves and flowers in different positions, including effects of foreshortening; to sketch objects and diagrams in good general proportion; to draw at arm's length on the board, and to sketch on paper, right angles and squares on any given lines; to represent constructed objects in two dimensions, showing general appearance in different positions and correct

proportions; to represent readily landscape involving any kind of mountains, trees, or shore line; to draw the human figure in any position with fairly good proportions.

III. Ability

1. To appreciate and apply the principles of good spacing more generally in the arrangement of all school work.

2. With increasing taste and skill to translate familiar forms into highly conventionalized decorative units, by repetition of the form or by the use of materials which automatically produce conventions; for example, cross-sectioned paper, cross-stitch, weaving, or mosaic.

3. To make geometric units by modifying geometric figures, changing a square by corner and side cuts, etc., and to make pleasing line borders with appropriate units at the corners.

4. To print readily with single-lined letters and to fit words pleasingly into given spaces, or initials into geometric figures.

IV. The use of color freely in all work, water color being used as well as crayons.

1. Ability to match any color with water color as well as with samples.

2. The beginning of an appreciation of color values; that is, the changes produced by adding black or white to a color.

3. Color in design: ability to make flat washes of light tones over given areas; use of one color with black or white.

GRADE V

I. Some training in systematic gathering of data, from textbooks, pictures, and objects, for illustrating a given theme.

II. Ability

1. From memory, to draw and to model in the round with considerable detail, and to represent in different positions, and to sketch rapidly with expressive general effect, two or three selected birds and animals in addition to those learned in the previous grades. The use of objects, sketchbooks, and picture collections in gathering data for these.

2. To represent leaves and flowers in different positions. To study out effects of foreshortening by means of shadows, pictures, observation of nature, etc.

3. To sketch objects in good general proportion, and to sketch simple groups of two objects to show the relative proportions correctly. To represent some few objects in three dimensions.

4. To draw on paper, and at arm's length on the blackboard, right angles, squares, and oblongs, of specified proportions, on any given line,—and also circles,—and to bisect and trisect given lines free-hand.

5. To represent the human figure in any position with good proportions, and with more careful drawing of details than previously; that is, hands, head, and feet.

6. To represent most of the common types of landscape, either with water color, crayon, or on the blackboard with chalk.

III. Ability

1. To recognize and appreciate a good design, either the formal design or the decorative drawing, and to tell wherein it is good, to make all drawings more or less decorative in character.

2. To conventionalize, by means of squared paper, mosaic, cross-stitch, weaving, or otherwise, any familiar form for decorative use.

3. To make line borders, using several lines of varying widths, and to interlace these lines in turning the corners, so that the effect will be pleasing and harmonious.

4. To print rapidly and well, using the single-lined letters, and to fit several words into a given space, also to fit two or three letters into a given figure, and to make simple initial letters.

IV. The use of water colors and crayons with freedom and confidence.

1. Ability to match any given color with water colors or crayons and to select readily those pigments which when mixed will produce the desired tone.

2. Some experience in the decorative uses of different relations of color values and hues. An understanding of the terms "value" and "hue."
3. Ability to make flat washes, with special emphasis upon dark washes.

GRADE VI

I. Training in gathering data from pictures, objects, etc., by means of collections of notes and sketches, for illustrating a given theme.

II. Ability

1. To draw from memory animal and bird forms with knowledge which is constantly being increased by nature study, sketches for data, collections of pictures, modeling, etc.

2. To represent plant forms and trees with more expression of individual character and structure.

a. With rapid brush strokes in ink and color.

b. With careful pencil drawing.

c. With flat tones of color over pencil drawing.

3. To sketch objects and diagrams in good general proportions.

4. To draw groups of two or three objects in good relative proportions and in different positions.

5. To draw constructed objects, rectilinear and curvilinear, with some feeling for structure, for sequence of lines, and for the varying appearances caused by changes of position.

6. To draw on board, or on paper, geometric relations as suggested in Grade V.

7. To represent, in addition to types of landscape already learned, the most common forms of tropical landscape; for example, jungle regions, deserts.

8. To draw the human figure in action with good general proportions, and with more careful representation of shapes of hands, feet, legs, arms, etc.

III. Ability

1. To make decorative interpretations of animal and plant forms, with more appreciation of the beauty of line.

2. To formulate some of the fundamental principles underlying all good design.

3. To print, using the double-lined letters as found in a good Roman alphabet; also to print with the lower-case letters.

4. To make symbols and monograms of letters.

5. To make borders of geometric units; also decorative units from geometric shapes, cutting corners and sides.

IV. Ability to use water colors and crayons in all illustrative work and design.

1. Ability to make runs of hues between any two colors with water colors; also to make five values of a color, and to place any color as to its hue and value.

2. Color in design: ability to combine light and dark with a pleasing result.

GRADE VII

I. Ability to illustrate any given theme—to gather, independently, the necessary data, and to produce a result artistically good, and also true from the standpoint of the subject matter illustrated.

II. The representation, from memory, of all the forms learned in the graphic vocabulary throughout the school, and the representation from the object of any form, with good proportions and accuracy of detail.

1. Ability to draw readily from memory any of the animal and bird forms used in the previous years, to represent these with more detail, and to give different interpretations through the use of different mediums.

2. Ability to represent plant and tree forms with more understanding of individual character and structure.

3. Ability to draw groups of constructed objects, rectilinear and curvilinear solids, with feeling for structure and sequence of lines, and to represent these in any position.

4. Ability to draw, with a fair degree of accuracy, on board or on paper, geometric relations—as angles, oblongs, squares, etc.—of given proportions.

5. Ability to represent the human figure with more detail and accuracy than in Grade VI, through study of the shapes of hands and feet and a general knowledge of the structure of muscles and bones.

6. Ability to represent truthfully and with pleasing artistic effect any type of landscape from memory, and to sketch from observation portions of landscape in the immediate environment.

III. Appreciation of good pictures and designs through the study of a few selected examples.

IV. Ability to appreciate and apply the fundamental principles of design.

1. Ability to make decorative interpretations of any of the forms in the graphic vocabulary,—for example, animal, plant,—and to treat any type of landscape as a decorative composition.

2. Some appreciation of beautiful outlines.

3. Ability to space well, to print short quotations, and to illuminate these simply; to use decorative types of letters, for example, the Gothic and Roman; to treat letters decoratively in the use of ciphers, monograms, and initial letters.

V. Ability to appreciate color through the knowledge of some of the simple principles of color theory, and to apply this knowledge in the use of color.

1. The ability to recognize different intensities in color.

2. The ability to work out simple color harmonies.

3. The ability to describe any color approximately, by naming it in terms of its hue, value, and intensity.

4. The ability to make pleasing combinations of complementary colors.

CHAPTER V

CONCLUSIONS AS TO HOW CHILDREN LEARN TO DRAW

The plan followed throughout the series of experimental lessons described in the preceding chapter was to use any means which enabled the children to draw freely and well, to watch for and follow up indications of progress, and to keep detailed records of all the steps.

An analysis of these records shows that three lines of method are prominent.

1. The work was so presented that in each case the children drew for the sake of telling a story or of making arrangements of forms and lines and colors which they found to be pleasing in design.

2. The children were taught how to supplement and enrich their own direct observation of objects and to learn good methods of representing different effects and to become acquainted with excellent examples of artistic style, by the use of reference material in the form of photographs, pictures, written descriptions, etc.

3. The children systematically accumulated a graphic vocabulary consisting of forms which were

most frequently used or which helped to interpret a wide range of other forms.

In the course of the work certain facts became apparent which constituted the reasons for emphasizing these lines of work. Three of these are here stated as the basis of a theory as to how children learn to draw, and are discussed in sufficient detail to show why the instructor used the particular methods of instruction that have been described.

I. *Interest in telling something is the motive which inspires all good drawing.* This principle is generally accepted, and in most of the primary schools throughout the country it is in practical and successful operation. Imaginative drawing or pictorial story-telling, commonly termed illustrative sketching, has largely taken the place of formal geometric and object drawing. As a consequence the majority of little children draw with enthusiasm and expressiveness. The observing visitor to exhibitions of drawings by elementary-school pupils is impressed by the confident, vigorous character of the illustrative drawings made by children in the first three grades. These qualities are so apparent as to lead one to conclude that if the same sort of instruction is continued until the end of the elementary-school course, drawing will become a common and effective means of expression for nearly all the children, and that the undisguised crudeness of technique of these early drawings is not

a discouraging feature, but merely something which is inseparable from that stage of development and which will rapidly disappear under continued instruction.

But when one passes on to the drawings by older children, he finds that this early promise is only occasionally fulfilled. Many of the children who were so eager to draw in the primary grades have become apathetic. The spontaneity so apparent in the free drawing of earlier years seems to disappear in considerable measure when children, at about the third or fourth year in school, discover how unlike the actual appearances of nature their drawings are, and what unlovely forms and crude pictorial compositions they are producing. Why does not the early attitude of eagerness to use drawing continue more frequently than is the case? It is probably because a new kind of experience with things has developed and demands expression. Perception is growing clearer and calls for drawings which conform more closely to the new impressions from nature and to the higher standards of art than did the first crude scrawls. Children are no longer satisfied with the kind of drawings which they made during the first years in school, but their ability has seldom developed sufficiently to enable them to do much better. Consequently at the age of nine or ten years they are usually discouraged because their ability to draw does not develop as rapidly as their ability to see.

This new demand, that the power to express shall in some measure keep pace with the growing power to perceive and to appreciate, needs to be satisfied. The mere presentation of interesting subjects to be rapidly illustrated by unskillful hands is no longer sufficient.

There are few instructors who do not recognize these new interests of perception and of æsthetic appreciation and seriously attempt to meet them as they arise. Before children at this period of awakening can illustrate different topics with drawings for which they themselves feel some respect, they must gain skill in representing shapes and proportions and perspective effects. Consequently nature drawing, object drawing, composition, and design are introduced as more or less isolated subjects; that is, as special work in drawing and only distantly associated with other subjects. It is easy to see how these topics tend to become self-centered and to shut out any story-telling interest comparable to that which inspired the little children to spread rapidly upon the sheet of paper the stories of their experiences and imaginings and to hold up for our admiration the results, crude in themselves but remarkable in their power to suggest the movement and dramatic incidents of the narrative.

Of course leaves and flowers, in whatever connection they are presented, have their own charming

story of color and form, and we might argue that this, when added to the newly awakened interest in representing appearances, ought to compensate for the lack of narrative and to suffice. As a matter of fact, the representation of isolated things does not furnish an adequate motive for children except for the few to whom form and color of themselves make an unusually strong appeal and awaken a vivid inner experience. For these few, desirous to express what so strongly impresses them, ordinary nature and object drawing is sufficient, and they make excellent progress in it. These are the children with so-called "special talent." In most cases this type of talent in elementary schools appears to consist primarily in a special interest and not in a special endowment of skill. This interest is related to skill as cause to effect. In other words, if we can induce an equal interest on the part of other children they will develop equal skill. One of the significant facts brought out in the course of the work previously described is that not infrequently children who show under ordinary circumstances no indications of talent will, when the appeal to their particular interests is found, equal or surpass in skill those who appeared at first to be gifted artistically. It is interesting, also, to note that to some children the first real stimulus to skillful drawing came from the desire to impart some new intellectual discovery.

The impressions of form and color do not of themselves offer a sufficient stimulus to the majority of children in the fourth and fifth years of school life, nor is the progress they are making in drawing always sufficiently evident to them to supply the needed enthusiasm, although the incentive of evidently increasing power is at times a strong one. When a child finds he is actually mastering a particular effect he will sometimes forget the use to which he meant to put his drawing and will repeat the effect again and again, in order to enjoy the feeling of increasing ability and to assimilate it and make it permanently his own. A skillful instructor watches for these occasions and lets the children make the most of them.

The interest in recording impressions of a particular object must usually, for children at this age, be incidental to the appeal of some more general theme in which the particular object plays a part. For example, a child may find little to interest him in drawing a squash which is its own excuse for appearing in a particular drawing lesson, but is almost certain to be greatly interested if the squash is brought in as one of a series in connection with his nature study of the life history of a squash, in the course of which he has planted the seed, kept out the weeds, learned how to cultivate the vine and protect it from insects, and now to his book of sketches of the different

stages is adding this of the successful consummation of his work. The illustrated history of the squash introduces the story-telling motive. Each separate drawing is one of a series and is necessary to the unfolding of the tale.

In spite of the advantages of this interest, certain practical difficulties await one's efforts to use it. Suppose one selects, for a topic in drawing, one of the current school subjects; let us say a subject in history; for instance, pioneer life. This immediately calls for drawings of people, animals, landscape effects, wagons, log cabins, canal boats, etc. If a child has had no previous practice in drawing these things, the demands are too much for him. Either he must return to the crude sketches of the primary grades and thus violate his growing interest in adequate expression or so much time must be spent on mastering the various elements of his picture that the story interest is lost. Before the children can make drawings satisfactory to themselves, another history topic is taken up. Other subjects also clamor for illustration, and the drawing cannot keep pace with the calls made upon it.

For this reason the instructor in drawing often fears that drawing will become simply the "hand-maid of other subjects," and he feels driven to arrange a systematic course, covering the general principles of drawing as a separate study, which the

grade teacher may or may not apply to daily interests. He realizes that drawing has its own characteristic realm of subject matter and that it leads to certain unique experiences which every child should have. As a result we have courses in drawing which present a series of independent topics selected for the sake of cultivating skill and supposed to be used in connection with other interests after the power so to use them has already been developed in the time especially devoted to drawing.

While this relationship of drawing to other school subjects is being discussed theoretically, in actual practice most of the difficulty disappears when those who have the work in charge have clear ideas regarding this question: What degree of skill in drawing at any given stage of school life will best serve the needs of expression at that time? Suggestions relating to this question are given in the chapter on interests and standards of attainment (pp. 210-230). With the character of these needs in mind the instructor can plan the technical progress which is necessary in order to provide an adequate vocabulary. He then finds little difficulty in illustrating a wide range of current topics without sacrificing progress in drawing as such.

If the instructor chooses for drawing in Grade VI the subject in history just referred to, namely, pioneer life, and has no definite plan of progress in drawing through the grades, the class work is more than

likely to result in confusion. On the other hand, a teacher whose work is well planned knows which of the objects occurring in this illustration are new to the children and also what technical knowledge they need at this time. There has probably been already considerable study of people and animals and landscape effects.¹ He may decide, therefore, to give these only incidental attention as elements in the composition and set the children to gathering data and studying the way to draw constructed objects, such as wagons, log cabins, or canal boats; or he may devote the time wholly to pictorial composition. Having selected one item for class study, such as log cabins, he will find that a somewhat thorough consideration of this one thing makes it a center of interest which stimulates the children to study the other related objects on their own account.

These individual investigations may be so guided that in addition to the central topic of the log cabin each of the children will select a secondary one which he will contribute. One group will study the appropriate animals, another the particular landscape effects of the country, etc. Group work of this type, where each child is contributing his part to a common theme, utilizes to the full the story-telling interest and in addition usually produces greater actual

¹ For an actual instance of the use of this topic in Grade VI, see pp. 72-77.

progress in technical skill in portraying all the objects involved than would have resulted if the whole time had been spent upon any one of them apart from its relation to a vitalizing theme. The story becomes a selective idea, enabling the children to choose from the infinite variety of possible aspects of each object those which they need. Moreover, the inquiries which the children make at such times as to how to represent certain effects give the instructor the best indications of the standards of technical attainment which at that stage best serve their needs of expression. The instructor who knows what he wants to accomplish in any given year will have little difficulty in placing his emphasis in such a way that drawing which is used largely in close connection with other school subjects will show progress just as systematic as can be brought about by any other method.

Of course it is seldom possible to illustrate all the school subjects simultaneously. The instructor is compelled to choose. At times, also, when it is possible to awaken interest in the acquirement of the skill to master some particular effect which may be assimilated once for all if drilled upon at that time and which will always be useful, he may make that the theme, as the teacher of mathematics tries at some time to have mastered, once for all, the fundamental processes of number. He will find opportunity

to add to the study of almost every subject in the curriculum the particular kind of intellectual comprehension and æsthetic pleasure which drawing alone contributes, and at the same time he will complete his "course" with a success which would have been impossible if he had made it a special and isolated study, because the interest in telling something will always be present.

The reason for emphasizing the second line of work, namely, the study of pictures to supplement direct observation of objects and to show methods of drawing and examples of style and composition, is as follows:

II. Industrious drawing directly from objects, unaided by other sorts of study and practice, has not proved to be the most effective way of learning to represent them. This is here stated negatively, because the opposite is so often urged. On the positive side, one of the most important supplements to drawing from nature is the use of pictures as a source of information as to how things look and also as a means of learning good ways of drawing.

The reaction from the time when all instruction in drawing was from copies has carried us too far in the other direction; namely, of supposing that the impressions we receive from objects at the moment when we are looking at them are sufficient to enable us to draw them. It is pretty nearly true for all of us,

and almost absolutely true for children between the ages of seven and fifteen years, that people learn to draw, if at all, largely by aid of memories of the way others have drawn the things they themselves are attempting. For this reason a collection of pictorial reference material is a necessary part of the equipment in drawing. One who is learning to draw an animal, after he has made his first sketches, needs to see good drawings of animals in connection with his observation of the animal itself, in order that he may be helped to select out of the crowd of impressions which he receives from nature those which are useful for pictorial purposes.

Copying, a means of close study which almost every art student uses at times, and even tracing, where the hand actually follows, and thus experiences the movement of, well-drawn lines, are important occasional aids to drawing.

From drawings and photographs children can obtain a far wider range of facts for use in illustrating different topics in history, geography, and literature than their direct observation of nature alone can afford. Children who are illustrating a topic, and who have been taught to handle reference material, will look over a pile of pictures and select facts of form or suggestions of action and composition which will enrich their illustrations. Now and then they will stop to make experimental sketches of effects they wish to use.

Occasional copying of excellent drawings made in the mediums which the children are using will show them the possibilities and appropriate uses of lead pencil, water color, charcoal, etc. The ability of children to observe objects and to draw from them appears to be stimulated rather than hindered by a use of pictures such as is here suggested. One significant result is the confidence children gain by becoming able in this way to find out for themselves how to produce any desired effect.

A question is often raised as to the effect on a child's originality when his own ways of seeing and interpreting are modified by a study of the ways of others. This is comparable to asking, in the field of science, what effect it will have upon a student's originality to reënforce his own seeing and describing of a flower or a stone by the seeing and interpreting of these objects which others have recorded in botany and geology. The description by another person sends one back to nature with a new capacity for analysis and appreciation. It is also true that one finds as much stimulus for originality in the study of the works of other people as in the study of the works of nature, and neither has its greatest value when considered alone.

A phase of drawing which supplements direct drawing from objects and also the study of pictures, namely, memory drawing, needs consideration here.

In a sense, all drawing is memory drawing. It ranges from the brief momentary recollection of a child, hastening to put on paper the impressions of the previous instant before he shall forget them, to the compositions of a mature person, in which he sums up a long accumulation of memories. But it is all memory drawing. One cannot have his eye on the paper and the object at the same instant. Some interval must occur between the vision and the record. The length of the interval between seeing and recording determines to some extent whether this memory shall be superficial and fragmentary or shall involve a broad mental reconstruction of the impressions received. Even the simple device of compelling children to pause an instant before recording what they see is of value.

Small children relieve us of responsibility in this regard by taking the matter into their own hands. One who watches them sees that they seldom take seriously any instructions to observe closely the object which they are drawing. They give it a glance and proceed to draw out of their heads, influenced only in part by the object before them. When it first became our custom as teachers to "allow" them to draw from their imaginations, it was probably rather a matter of resignation to the inevitable than of principle on our part. Moreover, at an age when a row of chairs will serve as a train of cars or a dark

corner of a room as a cave, the pictographs which children draw answer sufficiently well if they serve to recall the thought in mind, even if they do not represent the actual object.

With older children it is different. Their perceptions have developed to a point where they reject any representation which does not conform in some degree to actual appearances. The danger is that, notwithstanding instruction to the contrary, they will isolate details and record them in succession with little effort at seeing the subject as a whole. Many instructors make a sincere effort to train pupils to see comprehensively by mapping, or "blocking in," the whole object or group with light lines first and then placing the details within this plan in proper relation to the whole. This method, which is of great value to the mature student, appears to be of little practical advantage in elementary schools. Of course the test is whether or not the children actually adopt it as a way of working. If we watch them when left wholly to themselves, we see that they almost always return to the addition-of-piece-to-piece procedure. Some more vital method of synthesis appears to be required. Only in drawing from imagination and from memory are children likely to make a drawing which is an organic whole. Sheer industry in recording immediate sensations and impressions seldom develops ability to draw well.

If one alternates the drawing of an object from memory with drawing it from direct observation, he realizes how much each of these methods helps the other. In drawing from memory the child weaves together all his knowledge of an object into a coherent whole, and when he then returns to drawing from the object, he gathers data with more discrimination because the memory drawing has made him realize the gaps in his knowledge. These data he retains in mind to a greater degree than he otherwise would, and consequently is able to use them in his next drawing from memory. The mental image forced into clearness by the memory drawing gives a new coherence to the impressions which the child receives from the object when next he sees it with all its details. This is a lesson which many an art student, discouraged by the failure of industrious academic practice to give him ability in pictorial expression, has discovered, and it is one which we who would advance drawing in elementary schools must take to heart.

When the story-telling interest is present, drawing from objects, the study of pictures, and drawing from memory and imagination become mutually reënforcing to the highest degree. If a child in Grade VII is to illustrate a topic in geography, for instance, Holland (see pp. 96-103 for a somewhat similar treatment of other topics), the making of a sketch in

which he puts down what ideas he has, however meager and crudely expressed they may be, is the best preparatory step for further study. He knows now what information he needs, and proceeds directly to the sources from which he can obtain it. Each time he rearranges his picture he assimilates facts and suggestions already acquired, and quickens his appetite for more. Material thus obtained is likely to be permanently retained in mind.

An important fact which became apparent in the course of the work, and which is one reason why so much time was spent in the somewhat mechanically thorough study of a few selected forms, is the following:

III. *Progress in ability to draw is not general but specific.* Increase in ability to draw means increase in ability to draw those particular things upon which one has been practicing. It does not apply equally to drawing other things, except in so far as the things one has learned to draw have characteristics in common with these other things. In other words, increase in ability to draw birds may not imply a corresponding increase in ability to draw trees. We often hear it said that this person can draw or that person cannot draw. Children and artists are usually more specific. The child says, "I can draw a boat, but I cannot draw a house." The statements of the artist are likely to be equally definite. An excellent portrait

painter will often hesitate to undertake a landscape without special practice in that line. A good landscape painter may fail in attempting to paint still life. In drawing, as in any other language, one accumulates a vocabulary within the limits of which he can converse.

The relation of this fact to methods of teaching drawing is evident. The children must be aided in building up a graphic vocabulary which is completely at their command. If this vocabulary is wisely selected, even if it is small it will still give the children a considerable range of expression and a clue to the way to draw many associated objects which they have not studied so thoroughly.

To add any given form to their graphic vocabulary in the sense here intended, the children must gain a much more thorough mastery of it than will come from the making of two or three sketches. For example, suppose that one of the topics decided upon is a bird. Instead of drawing different birds successively, the children should learn one bird shape so thoroughly that they can draw it from memory with perfect confidence. Occasionally, even in the case of small children, this knowledge may be secured by alternating memory drawing with reference to the actual bird for data. Usually, however, it is necessary, especially at the first, to resort to a literal reproduction of a single form, the appearance of which

in one position has been committed to memory. The simplest material is a hectographed outline of the bird, from which the child traces, cuts out the shape, draws, and repeats, and thus learns it in a manner as mechanical and as thorough as that by which he learns the form of a letter. It is here that the artistically trained teacher of drawing is tempted to protest and raise some significant questions: for example, Will not such mechanical and formal experience destroy any spontaneity? And will not all birds thereafter be drawn according to this memorized symbol? Actual schoolroom experience shows that the opposite is true. The results answer these two questions specifically.

First, after a form is once learned with sufficient thoroughness, children proceed at once to vary its pose and action, but they show in making these variations the confidence and skill gained from the first presentation. In one case a teacher engaged in the experiment taught a first-grade class the form of a frog, which was needed in a story illustration. This form was particularly difficult. The children could get little from the object or from pictures. The instructor worked on the form in one position, teaching line by line from a hectographed outline for two weeks. Meanwhile someone skilled in drawing made sketches of frogs from time to time on the blackboard. When at length the children succeeded in

learning the form, they seemed suddenly to clothe it with vitality, and, with great enthusiasm, drew frogs in various positions. When once this first image was clearly in mind it proved to be a framework to which the children readily added new data obtained from pictures and from nature—data they were apparently unable to assimilate before. The memorized image became the starting point for a greater and more persistent spontaneity than could be obtained by any other methods. A description in detail of the steps by which another form was acquired is given on pages 117-120.

Second, children who, by detailed study, had acquired a definite image of one bird in a single position found this image to be a center of reference and comparison when they saw other birds and other positions. Because of it, they were able to see variations more clearly, and the results when they drew birds of a different species were less like a conventional symbol than were those of children not equipped with some such clear-cut mental image of a particular form for reference.

When a mental picture of some one thing has been developed so clearly and concretely that it can be drawn confidently and with little effort, as a well-known word can be written or melody sung or stanza repeated, it becomes an interpretative image; a means of understanding other forms which are

more or less similar. If a child who has had no previous training in learning thoroughly one bird form is asked to draw from nature birds of different kinds, he will perceive the differences in a general way. But if one specific bird shape has been well mastered and assimilated, it acts as a pattern to which he refers other bird forms. There appears to be a keener perception not only of points of similarity between the new form and the shape he remembers but also of variations from that shape. In other words, the individual characteristics of a new bird form are expressed with greater, and not with less, discrimination. Curiously enough, children from five to seven years of age, whose drawing is of the crude hieroglyphic type, are especially interested in these detailed steps by which a form is learned and appear to welcome and find delight in the resulting clarification of a few mental images. Without interrupting the free spontaneous story-telling, these clear and carefully built-up mental images reënforce with specific data their indefinite ideas of form.

In the detailed steps described on pages 117-120, it will be noted that the first work is in outline rather than mass. Drawing in mass is widely recommended as the most natural first step because the actual impression which one receives from an object, say a leaf or a fruit, is of a mass of color and not of a defined outline. Representation in mass, however, is probably

not natural in the sense that it is the most direct expression of a child's interest in an object. His interest appears to be not actually to reproduce all his impressions of an object just as they come to him, but to find some convenient means of simplifying those impressions, some way of disengaging the object from its confusing surroundings and emphasizing a few of the many sensations it gives him.

Outline drawing is one of the most direct methods of isolating and simplifying the form of an object. One has only to watch the drawing of children to discover how seldom they will, of their own accord, use mass drawing as the first step in describing objects. Even when urged to draw in mass and provided with brush and color as the appropriate means, they almost invariably sketch the outline first and then fill it in. To fill in an outline already made interests them greatly, but they insist upon the outline as the first step in defining an object and as preliminary to any other processes of representation.

When the shape of some one thing has been thoroughly learned, so that the children know it by heart and can reproduce it with facility, the following results are usually evident:

First, they feel increased confidence in their ability to draw. If they can learn to draw one thing, why not another? Steps so definite and drill so thorough have something in common with exercises in

learning to write a given word. Every child produces some passable result. In the primary grades, as has been already remarked, this work, when supplementary to their free pictorial story-telling, is usually attended with great interest on the part of the children. They come to the later grades with considerable confidence in being able to learn to draw any given object. They have also the attitude of mind that drawing, like other subjects, is mastered by systematic study.

There is also a second result of memorizing forms, which has a particularly important influence upon the study of design and the development of artistic appreciation. When a form is thoroughly learned, children delight to draw it repeatedly for the fascination of seeing it grow under their hands and for the stimulating sense of rapidly increasing skill. They will draw it in school and out. Sometimes they will make long rows or surface patterns of animals or birds or objects which they are learning to draw. This playful repetition of forms not only imparts to the child's pictorial expression a degree of facility which could hardly be developed in any other way, but it also leads children by a natural path to certain realms of design the approach to which without this experience in mastering appearances is likely to be somewhat artificial. Their own drawing helps to explain to them many historic forms of design.

When one repeats a form frequently, that form tends to acquire a style usually more or less decorative in character and expressive of the individuality of the person. Handwriting is a good example of this. Students of the history of design find that many apparently abstract decorative forms have resulted from continual repetition of what was once a pictorial representation. It is true that design has other important sources, such as the arrangement of geometric shapes and other abstract forms and the modification of structural elements of objects. Nevertheless, this evolution of pictorial drawings into forms whose charm is preëminently decorative makes a unique contribution to one's artistic appreciation. Sometimes, as in certain primitive tribal designs where many individuals have worked over the same subject, the forms become so abstract that the original pictorial appearance is quite lost.¹ In other cases, as, for instance, in the work of Corot, the early labored and literal work develops into a style the decorative quality of which is so intimately bound up with the pictorial significance that it sometimes escapes notice at first.

A style thus developed has elements begotten of the personality of the producer and of the significance of the subject which are more evident than is the case when a decorative convention is consciously

¹ A. C. Haddon, *Evolution in Art*, pp. 164-199.

adopted. Someone has expressed the same idea in the realm of literature by saying that poetry demands not only meters but meter-compelling ideas.

Because one has repeatedly drawn pictorial forms until they have become conventionalized and bear the impress of his individuality as plainly as his handwriting, it does not therefore follow that the style he evolves by his own effort is artistically good. He needs continually the suggestion and inspiration of excellent examples. Nevertheless, we can readily see the difference between the experience of a child who is given some distinct style of decorative interpretation which he is to apply to a form which he can draw only fairly well and the experience of a child who is urged by his knowledge of, and pleasure in, a form to repeat it until it attains that abstraction and formal consistency which inevitably results from playful repetition. When at different stages of his experimentation he is made familiar with fine examples of design, he is likely to adopt and assimilate readily those decorative conventions which best accord with and express the aesthetic mood into which his own experimentation is leading him. His artistic expression is influenced by the good examples which he sees, yet it retains a unique element of spontaneity. One of the most interesting fields of investigation open to teachers of design is that of noting the stages by which an oft-repeated

and well-understood drawing tends to assume rhythmic and decorative forms.

The foregoing considerations are not at all intended to minimize the great value of practice with the more purely æsthetic elements of design, but to emphasize the truth that a painstaking study of facts not only is not necessarily antagonistic to æsthetic development but, on the contrary, is the natural, and has been the historical, pathway to one of the major realms of æsthetic expression.

An instructor who plans a graphic vocabulary faces at once the practical question of its nature and range. It would be a hopeless and useless task to attempt to learn with the degree of thoroughness here suggested any large number of forms. If the instructor, in making a selection, chooses those things which, when well understood, interpret and make easy a wide range of others, he thus builds up a vocabulary of most frequently recurring, or of most widely interpretative, forms. This was the idea which several years ago made almost universal the study of the principles involved in the geometric solids—the sphere, cylinder, and cube. Under these types or combinations and modifications of them the shapes of a large proportion of objects, organic as well as constructed, could be classified. It was therefore said that if one learned to draw these forms he was learning to draw a wide range of related objects. This

plan often worked successfully with mature students but very seldom in the case of elementary-school children. The reason for its failure with children lies in the fact that it presented principles to be logically applied, instead of developing perceptions or mental images as a means of direct interpretation.

The idea of using type forms was excellent. The mistake lay in not using them as interpretative images; that is, as a means of quickening one's power to draw related forms so that they would look right. The description of an experiment in using rectangular solids as a means of perceptive, instead of logical, approach to the drawing of houses, boxes, chairs, and other rectilinear forms is described on pages 184-203.

What types should constitute the graphic vocabulary the images of which are to be built up systematically? In making his selection the instructor in drawing must have in mind the general field which he wishes to cover during the entire course and select for study a few things which will interpret wide ranges of form. These selected things should be learned, reviewed, and fixed in much the same way as the teacher of language establishes a well-chosen vocabulary. When he has decided upon the general type of topics needed, the themes for illustration which occur in connection with other subjects of the curriculum will readily suggest particular

objects. In the experimental lessons described in this book, the following topics proved of value in interpreting the more important visible forms:

1. Organic forms: two or three bird and animal forms, and two or three plant forms.
2. Geographical forms: mountain, plain, river, etc.
3. Constructed forms involving rectangular and curvilinear solidity.
4. A few of the simpler geometric forms and relations.
5. A few examples of good composition.

Until one has watched carefully the intellectual processes involved in drawing, he does not realize how dependent we are, in almost every case, upon our memories of similar forms as a means of analyzing what we see, even when we appear to be directly recording the impressions of the form before us. If there is any case in which this reliance upon memories of form would seem to be unnecessary, it is when one is merely mapping out the general shape of objects. A person with good judgment of proportions might be expected to draw with fair correctness the main contours of any object which might be presented, whether he had had previous experience with it or not. This delineation of the general proportions is not usually regarded as demanding any developed concept as a basis for progress. It is supposed to be a direct copying of form, since, it is argued, no previous idea of the object is necessary

in order to decide upon the slant of any one of its edges or the relative height and width of its shape. Here the impressions of the moment appear to furnish all the data, and therefore one naturally supposes that only direct, industrious practice can overcome the difficulty involved in representing shapes correctly. This ability to sketch the general shape of any object which may be presented is probably what is in mind when one speaks of a skill in drawing which is of universal application and based upon no specific memories.

This fallacy is responsible for much of the lack of ability on the part of children in upper elementary grades and in high schools to represent ordinary proportions and shapes easily and correctly. As a person examines his own mental process, he finds that when he begins to study a shape, it soon relates itself to, or resolves itself into, certain geometric elements; as when a map of a continent begins to suggest perhaps a triangle or a combination of geometric figures which give the key to its delineation, or when he finds himself comparing slanting lines with an imaginary vertical or horizontal. This kind of analysis soon offers to him hints of ways in which he can transcribe the form. The accuracy of the slant depends to a large degree upon the accuracy of his mental image of vertical or horizontal, with which he compares it. His ability to represent the main

proportions correctly depends largely upon his ability in triangulation. Consequently the definiteness with which certain geometric concepts have been established determines to a great extent his ability to represent any shape. What is usually regarded as general ability to draw, means ability to represent the mere spatial relationships of any object, and this in turn depends upon specific training in certain fundamental geometric relations. Indeed it is frequently found that a child who is unable to represent objects in good proportion will gain more by turning from his object drawing to a few exercises in representing specified geometric relations, such as the drawing of geometric figures from given dimensions, than in weeks of industrious practice with objects.

In so far as the experiments recorded in the previous chapters can serve as a basis for a theory of method which shall make drawing a profitable, stimulating, and generally used medium of expression in elementary schools, the principles of that theory may be summed up as follows: Children draw well only when they wish to tell some specific thing by their drawing. They should be trained to explore not only nature but also pictorial material as sources of reference from which to obtain data and methods for telling what they wish. Incidentally this experience gives them considerable independence; they can learn by themselves how to draw new things.

As supplementary work, a carefully selected graphic vocabulary should be systematically accumulated.

A discussion of the training of the teacher who presents drawing is not one of the purposes of this book. However, it is worth while to say here that the grade teacher as well as the special teacher should be able to draw; not necessarily to draw as an artist, but to draw well. She should at least know how to draw certain things connected with her teaching. In other words, she should have a somewhat definite graphic vocabulary of her own.

While mastery of one's subject is as important in drawing as in other fields, it is still a significant fact that a moderate degree of ability to draw plus a high degree of teaching ability and educational insight on the part of the instructor will often bring better results in elementary schools than will unusual artistic skill with a less degree of skill in teaching. To state this more specifically, a successful grade teacher with a liking for drawing which leads him to specialize in that subject will often develop a higher degree of appreciation on the part of the children than will a highly talented person with little skill in teaching. Perhaps this is because he knows by personal experience the steps by which a person of average ability learns how to draw. Of course the ideal is found in the instructor who possesses skill in both fields. The value of drawing

for and with the children is inestimable. The example of the instructor will always be an important element in good methods of instruction. The actual demonstration exerts a contagious influence upon children and gives the maximum of force to the impulse of their imitating minds. Actual classroom experiences abundantly justify a confidence on the part of all instructors, special and general, that the same sound methods and stimulating personality that bring success in other studies will be equally effective in the case of drawing.

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